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ROYAL BOTANIC GARDENS, KEW

XI.—NEW ASIATIC GENTIANS. C. V. B. Marquand.

The new species described in this preliminary publication were found during a detailed study of the Asiatic Gentians for a monograph of the Chinese species which it is intended to publish shortly. I am greatly indebted to Professor W. Wright Smith, Regius Keeper of the Royal Botanic Garden, Edinburgh, for allowing the whole of the extremely rich material of the genus under his charge to be sent to Kew on loan, and also for permission to publish diagnoses of five new species, drawn up by the late Sir Isaac Bailey Balfour.

Gentiana anomala *Marquand* sp. nov. (Sect. *Amarella*); affinis *G. arrectae* Franch., sed foliis petiolatis, calycis lobis acuminatis, corollis 4-lobatis differt.

Annual 3–5 cm. high. *Stem* slender, rather wiry, much branched, scaberulous, purplish. *Rosette leaves* O. *Stem leaves* small, few, broadly ovate, petiolate; lamina 3–4 mm. long, 2·5–3·0 mm. wide, margin somewhat sinuose; petiole 2·0–2·5 mm. long. *Flowers* numerous, erect, purple. *Pedicel* slender, up to 15 mm. in length. *Calyx* as well as the leaves blackish in the dried state; tube only 1·0–1·5 mm. long; lobes 4, acute, 5–6 mm. long, 2 ovate spathulate, acuminate, widest at the middle, 2 mm. wide, 2 narrowly triangular, acute, 1 mm. wide at the base. *Corolla* 1 cm. long, divided to the middle; tube 2 mm. in diameter; lobes 4, equal, lanceolate, acute, 2 mm. wide. *Nectaries* multifid, inserted at the base of the corolla. *Ovary* oblong-lanceolate, sessile, 4 mm. long. *Seeds* ovoid-reniform, glabrous.

S. Sze-chuan. On sheltered limestone cliffs on the west flank of the Litang River divide 10 miles west of Muli, 3900–4200 m., Oct. 1, 1921, *F. Kingdon Ward* 4963 (type Herb. Edin.).

Gentiana burmensis *Marquand* sp. nov. (Sect. *Chondrophylla*); affinis *G. gratae* H. Sm., sed floribus roseis, corollae lobis apiculatis integris, calycis lobis latioribus differt.

Perennial? slender plant 4–6 cm. high. *Stems* sub-hyaline, slightly branched, erect or ascending. *Radical leaves* O. *Cauline leaves* ovate apiculate, sessile, 4–6 mm. long, 2·5–3·5 mm. wide, with a narrow hyaline margin. *Flowers* solitary, sub-erect, lavender-pink. *Pedicel* erect, 4–6 mm. in length. *Calyx* 4–5 mm. long, up to 2 mm. in diameter, lobes erect, narrow triangular acute, shorter than the tube; sinus subobtuse. *Corolla* infundibuliform, 12–15 mm. long, 10–12 mm. in diameter at the mouth; lobes ovate triangular,

shortly apiculate, not erose, 2·5 mm. long, scarcely 2 mm. wide; plicae subtruncate, fimbriate, cilia filiform, subequalling the lobes, sinus between the lobes and the plicae narrow. *Stamens* reaching just below the mouth of the corolla; filaments slightly subulate, 3·5 mm. long; anthers erect, subcordate, 7 mm. long. *Ovary* long-stipitate, ellipsoid. *Style* 1·5 mm. long. *Stigmata* scarcely dilated. *Ovules* very immature. *Ripe fruit* not seen.

Upper Burma. Chaw-chi Pass, 3000–3600 m., Aug. 27, 1920; "Very local, but abundant in mossy pine slopes in the open of the glades. Flowers of a lively lavender pink irresistibly suggesting a Primula's and exceedingly pretty, without any of the family weakness for shutting up when picked, or when under a cloud. It ascends in occasional specimens to the high-alpine region (Sept. 6)." *R. Farrer* 1850 (type Herb. Edin.). Wulaw Pass, 2700–3000 m., Nawugchang Valley, north of Hpimaw; flowers mauve fading to blue at the base outside, on open but sheltered moss covered cliffs of a ridge of igneous rocks, 26 Aug., 1914, *F. Kingdon Ward* 1900.

Gentiana chungtienensis *Marquand* sp. nov. (Sect. *Chondrophylla*); ex affinitate *G. micantiformis* Burkill habitu erecto, corolla multo majore, lobis caudatis inter alia differt.

Annual. Stems erect, simple or slightly branched near the base, 2·5–5·0 cm. in height. *Rosette leaves* sessile, broadly ovate, acuminate, 5–6 mm. long, 3·5–4·0 mm. wide, with a distinct cartilaginous margin. *Cauline leaves* densely imbricate, ± naviculaeform, carinate, 3–5 mm. long, shortly cuspidate, with a rather broad hyaline margin. *Flowers* solitary, erect, bright blue, lined green on the exterior. *Pedicel* very short. *Calyx* 8–11 mm. long, 2·5–3·5 mm. in diameter, lobes narrowly triangular, acuminate, 3–4 mm. long, with a narrow hyaline margin, sinus acute. *Corolla* up to 2 cm. in length and diameter when fully expanded; lobes ovate, caudate, 2–3 mm. long, 2–2·5 mm. wide; plicae entire, triangular, acute, half the length of the lobes. *Stamens* considerably shorter than the corolla tube; filaments filiform; anthers 1·5 mm. long. *Ovary* subcylindrical to ellipsoid, stipitate. *Style* 1–2 mm. long. *Stigma* dilated at the apex. *Ovules* longitudinally striated. *Ripe seeds* not seen.

N.W. Yunnan. Moist open pasture on the Chung-tien plateau; lat. 27° 45'N., 3400 m., June 1917, *G. Forrest* 13865 (type Herb. Edin.).

Gentiana confertifolia *Marquand* sp. nov. (Sect. *Frigida*); ex affinitate *G. Georgei* Diels floribus foliisque multo minoribus, staminibus pro ratione fere duplo longioribus, inter alia differt.

Perennial densely caespitose with spreading much branched underground stems. *Flowering stems* erect, scarcely exceeding 2 cm. high, very densely clothed with the imbricate leaves. *Leaves* coriaceous, linear-lanceolate, acute, 2–3 cm. long, 3–5 mm. wide, sessile, dead leaves of the previous year's growth persistent on the

lower part of the stem. *Flowers* solitary or 2–3 together, sessile, immersed in the uppermost leaves, " pale china blue with chocolate anthers." *Calyx* tube entire, 1 cm. long; lobes lanceolate or oblanceolate, 14 mm. long, 3 mm. wide, apex acute, slightly recurved; sinus rather narrow. *Corolla* infundibular, 3·5–4·0 cm. long; lobes 5, broadly ovate-apiculate, 7 mm. long, 8 mm. wide; plicae obtuse, entire, slightly broader than, and half the length of the lobes. *Stamens* nearly equalling the tube; filaments 2·5 cm. long, filiform, incurved at the apex; anthers 3·5 mm. long. *Ovary* shortly stipitate. *Style* 1 cm. long. *Ovules* reticulate. *Ripe seeds* not seen.

N.W. YUNNAN. Yungning, 3000–3400 m., on sunny limestone cliffs, April 20, 1922, *F. Kingdon Ward* 5058 (type Herb. Edin.).

Gentiana damyonensis *Marquand* sp. nov. (Sect. *Otophora*); a speciebus duabus (*G. otophora* Franch. et *G. otophoroidi* H. Sm.) sectionis antea descriptis seminibus ovoideis bialatis, foliis parvis lineari-lanceolatis differt.

Perennial, densely caespitose and spreading from a rather small rootstock. *Barren stems* numerous, bearing linear-lanceolate leaves 2·0–3·5 cm. long, 2·5–3·5 mm. wide. *Flowering stems* glabrous, up to 9 cm. in length, each with a solitary terminal flower. *Cauline leaves* few, linear-lanceolate, sessile, 8–11 mm. long, 3 mm. wide, apex subacute. *Flowers* sessile or shortly pedicellate, with the " inside of the petals milky white with a flush of dusky violet and a few violet spots; outer surface dusky violet." *Calyx* 3 mm. in diameter at the mouth; tube 4 mm. long, lobes erect, linear, acute, 2–3 mm. long, 0·5 mm. wide, each with 1 distinct nerve; sinus broad subtruncate. *Corolla* 2 cm. long, divided to near the base; lobes 5, lanceolate, sub-acute, 15–18 mm. long, 5–6 mm. wide; plicae 5, minute, triangular-subulate, on one side of each lobe near the base. *Stamens* 5, filaments 12–14 mm. long, filiform, with a minute triangular pouch on the corolla tube on each side of the point of attachment. *Ovary* subsessile. *Style* very short. *Seeds* ovoid with a small wing of hyaline cells at each end.

S.W. SZE-CHUAN. Alpine pastures at Damyon, 4800–5200 m., Sept. 5, 1922, *F. Kingdon Ward* 5377 (type Herb. Edin.).

Gentiana ecaudata *Marquand* sp. nov. (Sect. *Frigida*); ex affinitate *G. Arethusae* Burkill foliis 4-verticillatis, corollae lobis ecaudatis, floribus majoribus inter alia differt.

Perennial, caespitose. *Barren stems* numerous, rosulate. *Flowering stems* ascending, 8–10 cm. in length, scaberulous. *Leaves* 4 in a whorl, increasing in size towards the apex of the stems, elliptic-lanceolate, acute below, gradually becoming linear-lanceolate above, 5–10 mm. long, 1·5–2·0 mm. wide, the uppermost surrounding the calyx. *Flowers* solitary, terminal, sessile, bright clear blue, deep blue and green on the exterior. *Calyx* green, up to 1·5 cm. long; lobes linear acuminate, 1 mm. wide, slightly shorter than the tube;

sinus broad, obtuse. *Corolla* completely closed in all the specimens examined, 3 cm. long ; tube 7–8 mm. wide, bright clear blue interior, deep blue and striped on the exterior, 15-nerved ; lobes 5, deltoid, 4·5 mm. long and wide, outside margin slightly serrulate and auriculate at the base, apex muticous or subapiculate, not caudate ; plicae obtusely triangular, less than half the length of the lobes. *Stamens* inserted about the middle of the corolla tube, at the convergence of the nerves below the plicae ; filaments subulate, 6 mm. in length ; anthers small. *Ovary* stipitate, not exserted from the corolla tube. *Stigmata* reflexed, scarcely dilated at the apex. *Seeds* reticulate, alveolate.

S.E. TIBET. Tsarong ; open moist moorland on the Salween-Kiuchang divide, north-west of Si-chi-to, lat. 38° 48′N., long. 98° 15′ E., 4500 m., Oct. 1922, *G. Forrest* 22797 (type Herb. Edin., syntype Herb. Kew.).

Gentiana Forrestii *Marquand* sp. nov. (Sect. *Chondrophylla*) ; ex affinitate *G. maeulchanensis* Franch. calycis tubo lobos duplo vel 3-plo superante differt.

Annual. Stems several, erect or ascending, glabrous, 5 cm. high, slightly branched. *Rosette leaves* sessile, broadly ovate or obovate, mucronate, up to 14 mm. long, 10 mm. wide ; midrib strongly raised on the lower surface, scarcely visible above. *Cauline leaves* in 2 or 3 pairs, ovate or lanceolate, acute, sessile, scarcely exceeding 4 mm. long, 2 mm. wide, ± adpressed to the stem, apex acute or mucronate. *Flowers* " blue, dark blue-green exterior." *Pedicel* erect, up to 1·5 cm. long, ·5 mm. wide. *Calyx* tubular campanulate ; tube 4·5 mm. long, 2·5 mm. wide ; lobes 5, deltoid, shortly acuminate, 2 mm. long, 1·5 mm. wide, midrib distinct, lateral nerves slender, reticulate ; sinus narrow, acute. *Corolla* infundibuliform, 12 mm. long ; lobes 5, 3 mm. long, 2 mm. wide, apex sub-obtuse ; plicae broad, obtuse or slightly emarginate, half the length of the lobes. *Stamens* inserted just above the base of the corolla tube ; filaments much shorter than the tube ; anthers oblong, 1 mm. in length. *Ovary* stipitate. *Style* scarcely 1 mm. long. *Seeds* trigonal, 1 mm. long, 0·5 mm. wide, angles carinate.

N.W. YUNNAN. Open moist stony pastures on the Mekong-Salween divide, 3600-3900 m., lat. 28° 12′ N., July 1917, *G. Forrest* 14183 (type Herb. Edin., syntype Herb. Kew.).

Gentiana hapalocaula *Marquand* sp. nov. (Sect. *Stenogyne*) ; affinis *G. serrae* Franch., sed corollae tubo angustiore, calycis lobis parvis filiformibus, plicis breviter fimbriatis differt.

Annual. Stems numerous, weak, straggling, glabrous, up to 30 cm. in length. *Internodes* long (2·5–6·0 cm.). *Basal leaves* 0. *Cauline leaves* sub-membranous, cordate-ovate, 1·3–1·8 cm. long, 1·0–1·5 cm. wide, very shortly petiolate ; both upper and lower surfaces glabrous, margin serrulate, slightly recurved, apex acute. *Flowers* solitary, terminal, sessile, on peduncles up to 9 cm. in length

with a single pair of leaf-like bracts. *Calyx* in the bud, while the corolla is still completely included, with recurved lobes : when the flower is expanded—tube 10–12 mm. long, 3·5 mm. wide at the mouth ; lobes erect or recurved at the apex, filiform, 2·0–2·5 mm. long ; sinus wide, obtuse. *Corolla* deep blue, 2·5 cm. long ; tube scarcely exceeding 5 mm. wide at the mouth ; lobes lanceolate, acute or acuminate, 10–12 mm. long, 3·5–4 mm. wide ; plicae subtruncate, shortly fimbriate-dentate, more than half as long as the lobes. *Stamens* slightly longer than the corolla tube. *Ovary* stipitate. *Style* 4 mm. long. *Stigmata* strongly recurved. *Seeds* ovoid, smooth.

N.W. YUNNAN. Amongst grass in open situations on the Tong-shan in the Yangtze bend, lat. 27° 20′N., 3000 m., Oct. 1913, *G. Forrest* 11444 (type Herb. Edin.).

Gentiana muliensis *Marquand* sp. nov. (Sect. *Amarella*) ; affinis *G. Traillianae* G. Forrest, sed calycis lobis apice attenuatis acutis albo-setulosis duplo longioribus differt.

Annual. Stems rather slender, much branched, purplish, scabrid, up to 20 cm. high, internodes up to 6 cm. long. *Leaves* few, in pairs, sub-membranous, lanceolate, subsessile, 1·8–3·0 cm. long, 5–8 mm. wide ; apex subacute. *Flowers* several on each stem, long pedicellate. *Pedicel* erect, 4–8 cm. long. *Calyx* 5-lobed nearly to the base, setulose throughout, equalling the corolla tube or nearly so ; lobes erect, narrowly triangular-lanceolate, unequal, 12–14 mm. long, 1·5–3·0 mm. wide ; apex acute. *Corolla* " deep purple-blue, throat white," 5-lobed to near the middle ; lobes imbricate, broadly obovate or suborbicular, 9 mm. long, 8 mm. wide, apex entire obtuse. *Squamae* white, multifid, 4 mm. long, inserted across the corolla lobes at the mouth of the tube. *Stamens* equalling the squamae ; filaments 6 mm. long ; anthers deltoid. *Ovary* linear subsessile. *Style* very short. *Seeds* smooth, sub-globose.

S. SZE-CHUAN. Open alpine meadows and in pine forests, Muli mountains, lat. 28° 12′ N., 3600–3900 m., Oct. 1918, *G. Forrest* 17040 (type Herb. Edin., syntype Herb. Kew.).

Gentiana nanobella *Marquand* sp. nov. (Sect. *Chondrophylla*) ; distinctissima, habitu *G. pudicae* Maxim. similis, a qua ovulis alatis reticulatis, floribus multo majoribus, inter alia differt.

Annual? *Stem* erect, much branched, scaberulous, up to 8 cm. high (one specimen bearing some 40 flowering stems). *Rosette leaves* densely crowded, ovate or spathulate ovate, mucronate, sessile, 3–5 mm. long, with a cartilaginous margin. *Cauline leaves* sub-orbicular, spathulate, mucronate, minute at the base of the stem, increasing in size towards the apex, up to 9 mm. long, 6 mm. wide. *Flowers* erect, terminal, solitary. *Calyx* 1·5 cm. long, 6–7 mm. in diameter at the mouth, tinged reddish purple outside, lobes erect, triangular acute, 3 mm. long, 2 mm. wide. *Corolla* bright clear blue spotted within, up to 3 cm. long ; lobes ovate subobtuse, 5–6 mm.

long, 4 mm. wide; plicae dark green, triangular acute, erose, slightly shorter than the lobes. *Stamens* shorter than the corolla tube; filaments slender filiform; anthers elongate, 2 mm. in length. *Ovary* stipitate. *Style* very short. *Stigmata* slightly dilated at the recurved apex. *Ovules* reticulate, winged. *Ripe seed* not seen.

N.W. YUNNAN. Open moist pasture on the Mekong-Salween divide, lat. 28° 10'N., 3900 m., Aug. 1914, *G. Forrest* 13220 (type Herb. Edin.).

Gentiana praeclara *Marquand* sp. nov. (Sect. *Stenogyne*); affinis *G. lineolatae* Franch., sed omnibus partibus majoribus differt.

Annual. Stem erect, scabrid, reddish-purple, much branched, up to 12 cm. high. *Basal leaves* O or very few. *Cauline leaves* lanceolate or ovate-lanceolate, acuminate, 1–2 cm. long, 4–9 mm. wide, rather crowded at the apex of the stem. *Flowers* large, deep rich purplish-blue with a greenish exterior, sessile. *Calyx* 3·0–3·5 cm. long, 1 cm. in diameter, divided to the middle, lobes lanceolate, acuminate, 5 mm. wide, margin cartilaginous towards the apex, with a broad wing on the exterior of each, extending throughout the length of the calyx (2 mm. wide in the middle, tapering towards the apex and base). *Corolla* infundibuliform, 4·5–6·0 cm. long: lobes ovate deltoid, slightly asymmetrical, 12 mm. long, 7 mm. wide, apex subacute; plicae short, laciniate. *Stamens* shorter than the corolla tube. *Ovary* linear oblong, stipitate. *Style* long. *Ovules* ovoid, exalate. *Ripe seed* not seen. In addition to the normal flowers described above, small much reduced flowers are seen in some of the specimens, near the base of the stem.

S.W. SZE-CHUAN. Open alpine meadows, Muli mountains, lat. 28° 12'N., 3400 m., Oct. 1918, *G. Forrest* 17075 (type Herb. Edin.). All over the open sloping pastures around Muli, 2400–2700 m., "a pretty little species now in full bloom and abundant," Oct. 15, 1921, *F. Kingdon Ward* 4968. In open moist stony meadows on the mountains S. E. of Muli, lat. 27° 50'N., long. 101° E., 4200 m., Oct. 1922, *G. Forrest* 22992.

Franchet placed *G. lineolata* in Sect. *Chondrophylla*; Kusnezow transferred it to Sect. *Frigida*: but its affinities as well as those of this species are rather with Sect. *Stenogyne*.

Gentiana pterocalyx *Franch.* in Journ. Linn. Soc. Bot. xxvi. 132 (1890).

var. **flavo-viridis** *Marquand* var. nov., a typo differt floribus dilute flavidis, corollae plicis viridibus.

N.W. YUNNAN. In open stony mountain pasture on the eastern flank of the Lichiang Range, lat. 27° 30' N., 3400 m., Sept. 1910, *G. Forrest* 6531. In open woods on the south side of the snow-covered mountains near Lichiang, 3800 m., Sept. 2, 1914, *C. Schneider* 2340. In alpine meadows in the neighbourhood of Chungtien, 3600 m., Sept. 4, 1914, *C. Schneider* 3002. In stony

alpine meadows on the sides of the snow mountains near Lichiang, 3600 m., Sept. 4, 1914, *C. Schneider* 3135.

This appears to be a very well-marked variety, the corolla tube being on the whole wider than in the type, as well as the flowers having constantly pale yellow corolla lobes and greenish plicae, instead of deep blue flowers.

Gentiana Purdomi *Marquand* sp. nov. (Sect. *Frigida*); affinis *G. apiatae* N. E. Brown, sed calycis lobis erectis, corolla epunctata, stylo multo longiore, differt.

Perennial. Flowering stems erect, 20 cm. high, purplish, indistinctly spirally twisted, glabrous. *Leaves* of the short leafy stems linear-lanceolate, up to 15 cm. long, 8 cm. wide, attenuate into the petiole, apex subacute; leaf sheaths rather conspicuous, membranous. *Cauline leaves* few, in pairs, 2·5 cm. long, ·5 cm. wide, sessile, apex subobtuse. *Flowers* 6–8 in a terminal inflorescence, pedicellate. *Bracts* like the cauline leaves. *Pedicels* up to 2 cm. long, smooth. *Calyx* tube entire, 7–9 mm. long, 3 mm. in diameter at the mouth; lobes erect, linear or linear lanceolate, acute, 3–6 mm. long, ·7–1·5 mm. wide; sinus rather broad, truncate. *Corolla* (colour not noted by the collector) in the dried specimens yellowish with narrow greenish-purple lines over the three nerves below each lobe, narrowly infundibuliform, 3 cm. in length; lobes 5, deltoid, subacute, 3 mm. long, 2 mm. wide, plicae sinuose-dentate, shorter than the lobes. *Stamens* about half the length of the corolla tube. *Ovary* stipitate, attenuate at the apex. *Style* 3 mm. long. *Ovules* reticulate. *Ripe seed* not seen.

West Kansu. Minchow, 2700–3000 m., 1914, *W. Purdom* (sine numero) (type Herb. Kew.).

Gentiana rhodantha *Franch.* in Journ. Linn. Soc. Bot. xxvi. 133 (1890).

var. **Wilsoni** *Marquand* var. nov., a typo differt foliis caulinis majoribus cordatis ad 2·5 cm. longis, floribus ad 4 cm. longis, plicis dense fimbriatis.

Western Hupeh. Without precise locality or altitude, Nov. 1907, *E. H. Wilson* (Arn. Arb. Expedn.) 2455.

The comparatively large cauline leaves and large flowers with very densely fimbriate plicae give this plant a distinct appearance, but some specimens in Herb. Kew. collected by *A. Henry* in Yunnan connect it with the type of the species.

Gentiana saltuum *Marquand* sp. nov. (Sect. *Chondrophylla*); affinis *G. panthaicae* Burkill, sed foliis ovatis obtusis calycisque lobis multo latioribus brevioribus triangularibus differt.

Annual without a distinct rosette of basal leaves. *Stem* erect, glabrous, solitary or slightly branched, 8–15 cm. high, semitranslucent. *Leaves* distant, ovate, obtuse, 4–7 mm. long, 2·5–4·0 mm. wide, entire, subsessile. *Flowers* solitary, terminal. *Pedicel*

1·0–1·5 cm. long. *Calyx* tube 5 mm. long, 3 mm. in diameter; lobes triangular, acute, 1·5 mm. long; sinus obtuse. *Corolla* bright blue; lobes 7 mm. long, 3·5 mm. wide, apex subapiculate; plicae fimbriate, scarcely half the length of the lobes. *Stamens* nearly equalling the corolla tube; filaments expanded into a broad wing at the point of insertion; anthers oblong. *Ovary* obovoid-oblong, long-stipitate. *Gynophore* dilated at the base. *Style* 1 mm. long. *Stigmata* scarcely dilated at the apex. *Seeds* elliptic-ovoid, smooth.

N. Burma. In damp open grassy places among the cane-brakes, Moku-ji Pass, 3500 m., Aug. 2, 1920, "flowers bright blue only opening in sunshine and shutting up as soon as picked," *R. Farrer* 1795 (type Herb. Edin.).

Gentiana setulifolia *Marquand* sp. nov. (Sect. *Frigida*); affinis *G. heptaphyllae* Balf. fil. et Forrest, sed foliis angustioribus, calycisque lobis margine setis multo longioribus cinctis differt.

Perennial somewhat creeping. *Barren stems* numerous, short. *Flowering stems* erect, scabrid, 10–15 cm. high, with internodes 2–4 mm. long. *Rosette leaves* O. *Cauline leaves* 7-verticillate, patent, linear, acuminate, sessile, increasing in size towards the apex of the stems, up to 9 mm. long, 0·5–1·0 mm. wide; margin with distinct stiff subulate hyaline setae: leaves of the upper whorls surrounding the calyx. *Flowers* large, solitary, terminal, sessile. *Calyx* purplish; tube 7–9 mm. long, 5–6 mm. wide; lobes 7–8, linear acuminate, 6–8 mm. long, 0·5–0·7 mm. wide, with stiff hyaline setae on the margin; sinus rather broad, obtuse. *Corolla* campanulate-infundibuliform, "sea blue, tube striped blue on a whitish ground," 4·0–4·5 cm. long, 1·5 cm. wide at the mouth of the tube; lobes 7–8 (more rarely only 6), ovate acuminate or very shortly cuspidate, 5 mm. long, 4 mm. wide, margin minutely erose; plicae short, laciniate. *Stamens* equalling the lobes in number, about three-quarters the length of the corolla tube. *Ovary* stipitate. *Ripe seed* not seen.

Frontier of Burma and Tibet. Valley of the Seinghku, lat. 28° 10′N., long. 97° 20′E., 3600–3900 m., Oct. 13, 1926, *F. Kingdon Ward*, with 7385 (type Herb. Kew.). Valley of the Seinghku, on granite slabs in shelter under cliffs, but in the open, 3000 m., *F. Kingdon Ward* 7485.

Gentiana sichitoensis *Marquand* sp. nov. (Sect. *Otophora*); peraffinis *G. otophorae* Franch., sed foliis caulinis late ovatis breviter petiolatis vix ad 1 cm. longis, foliis rosularum iis *G. otophorae* minoribus corollis extus intense coeruleo-purpureis differt.

Perennial with a rather stout non-fibrous rootstock. *Flowering stems* ascending, purplish, glabrous, 10–15 cm. high. *Leaves* of the short barren stems oblanceolate-spathulate, up to 4·5 cm. long, 1 cm. wide, apex obtuse, attenuate at the base; petiole 1·5 mm. wide.

Cauline leaves in 3 or 4 pairs, broadly ovate, 8–10 mm. long, 6–7 mm. wide, cuneate below, apex obtuse, petiole 2 mm. long, 1·5–2·0 mm. wide. *Flowers* terminal, solitary, or 2–3 together at the apex of the stems. *Pedicel* 2–12 mm. long. *Calyx* campanulate, tube entire, 5 mm. long, lobes 5, erect, lanceolate or ovate lanceolate, sub-obtuse, 2 mm. long, 1–1·5 mm. wide ; sinus broad obtuse. *Corolla* greenish-yellow, minutely spotted within, marked and lined deep blue-purple on the exterior, 2·5 cm. long ; tube short ; lobes lanceolate acute, 1·7 cm. long, ·5 cm. wide ; plicae linear, acute, 5 mm. long, 1 mm. wide, attached to one side of each lobe near the base. *Stamens* about half the length of the corolla lobes ; filaments subulate ; anthers linear, 2 mm. long. *Ovary* shortly stipitate. *Style* very short. *Ripe seed* not seen.

The androecium and gynoecium of most of the flowers examined were found on dissection to be destroyed by the larvae of an insect.

S.E. Tibet. Tsarong ; open alpine meadows on the Salween-Kiu Chiang divide, north-west of Si-chi-to, lat. 28° 48′N., long. 98° 15′ E., 4200 m., Oct. 1922, *G. Forrest* 22795 (type Herb. Edin., syntype Herb. Kew.).

Gentiana sino-ornata *Balf. fil.* in Trans. Bot. Soc. Edin. xxvii. 253 (1918).

var. **gloriosa** *Marquand* var. nov. a typo differt caulibus gracilibus, foliis submembranaceis elliptico-lanceolatis basi attenuatis.

S.W. Sze-chuan. In open moist alpine meadows on the mountains east of Yungning, lat. 27° 50′N., long. 100° 56′E., 3400–3600 m., Oct. 1921, *G. Forrest* 20640.

This striking variety with slender stems and lax, submembranous, elliptic-lanceolate leaves up to 2·5 cm. long, 4·5 mm. wide, and handsome deep clear blue flowers up to 6·5 cm. long (one specimen bearing more than 40 stems 25–30 cm. long), is connected with the type of the species by the following :—

S.W. Sze-chuan. "Plant of 4–8 inches. Flowers deep clear blue lined green." Open moist pasture by streams in the Muli mountains, lat. 28° 12′N., 3600 m., Sept. 1918, *G. Forrest* 17015.

Gentiana stictantha *Marquand* sp. nov. (Sect. *Frigida*) ; affinis *G. microdontae* Franch., sed calycis lobis revolutis, corolla maculata, inter alia differt.

Perennial (roots not seen) with the base of the stem surrounded by the membranous sheaths of the old dead leaves. *Stems* apparently erect, unbranched, 20–25 cm. in height, moderately stout and glabrous. *Basal leaves* few on short barren shoots, 8–14 cm. long, 3-nerved, the midrib visible from both sides, the 2 lateral nerves only from the under side ; lamina narrowly oblanceolate, 8–12 mm. wide, apex acute ; gradually attenuate below into a petiole of about equal length and 3 mm. wide. *Cauline leaves* usually in 2 pairs, up to 7 cm. long, 14 mm. wide. *Bracts* sessile, leaf-like, 3–4 cm. long,

6–8 mm. wide. *Flowers* minutely spotted yellow, tipped with blue in the dried specimens (colour not noted by the collector), 5–6 subsessile, terminal, rather dense, subcapitate, and 2 or more pedunculate, from the penultimate and lower nodes. *Calyx* streaked and tinged purple; tube 9 mm. long, 2·5–3·5 mm. in diameter, partly split down one side; lobes small, narrow, triangular acute, abruptly recurved. *Corolla* infundibular, 2·5 cm. long; lobes 5, ovate acuminate, 4 mm. long, 3·5 mm. wide; plicae very short, obliquely truncate or subacute. Stamens ⅔ the length of the corolla tube: filaments subulate: anthers 3 mm. long. *Ovary* long-stipitate. *Style* very short. *Stigmata* deltoid. *Ripe seeds* not seen.

S.E. Tibet. Alpine turf on the Donker La, 4200–4500 m., 1913, *F. Kingdon Ward* 1134 (type Herb. Edin.).

Gentiana suborbisepala *Marquand* sp. nov. (Sect. *Frigida*); affinis *G. tongolensi* Franch. floribus multo majoribus, staminibus inaequalibus differt.

Annual dense rosette plant 20–25 cm. in diameter. *Stems* very numerous, much branched, dark purple and scabrid throughout, bearing hundreds of flowers. *Basal leaves* O. *Cauline leaves* few, spathulate; lamina obovate-rotundate, 3–6 mm. long; petiole broad, equalling the lamina in length. *Flowers* terminal, shortly pedicellate, "steely blue." *Calyx* tube 12 mm. long; lobes spathulate, closely resembling the leaves, orbicular-reniform, 6 mm. long, 4 mm. wide, apex subapiculate; sinus subacute, overlapped by the free truncate apex of the inner membrane. *Corolla* infundibular, 2·5 cm. long, slightly contracted just below the mouth; tube spotted; lobes spathulate-ovate, 4 mm. long, 3 mm. wide, apex sub-obtuse; plicae acute or bifid, about half the length of the lobes. *Stamens* 5, 3 long and 2 short; filaments subulate, expanded towards the base; anthers oblong. *Ovary* long-stipitate. *Style* slender, 4–5 mm. long. *Stigmata* very short. *Seeds* ovoid, reticulate alveolate.

S.W. Sze-chuan. On open shrub-clad slopes on the Litang-Yalung divide, 3600 m., *F. Kingdon Ward* 4941 (type Herb. Edin.).

Gentiana Trailliana *G. Forrest* in Notes Bot. Gard. Edin. iv. 69, t. xii (1907).

Var. **minima** *Marquand* var. nov.; a typo differt omnibus partibus multo minoribus, caulibus 1–3 cm. altis, foliis breviter petiolatis.

G. Trailliana is a very variable species. In the present variety the stem is simple, only 1–3 cm. high, with the leaves rather crowded, shortly petiolate. "Flowers blue-purple, throat whitish," up to 1·5 cm. long.

S. Sze-chuan. Open, moist pasture on the Lei-lung Shan, lat. 28° 10′N., 4200 m., Aug. 1917, *G. Forrest* 15190.

Gentiana trichotoma *Kusnez.* in Acta Horti Petrop. xiii. 61 (1893).

Var. **albescens** *Marquand* var. nov.; a typo differt floribus fere albis.

N.W. Yunnan. In alpine meadows on the eastern side of the snow-covered mountains near Lichiang, 3600 m., Aug. 21, 1914, *C. Schneider* 3592.

In this whitish-flowered variety the flowers are smaller than in the type, being scarcely 2·5 cm. long, but other specimens connect it with *Pratt* 469 on which Kusnezow based his species; and a study of a large number of specimens shows *G. trichotoma* to be a very variable species. Not even does the character of the twisting of the corolla to the right, as seen from inside, which that author uses in his key to the section *Frigida* (l.c., p. 255) appear to be constant in this species as seen in the series of specimens in Herb. Kew.

Gentiana Wilsoni *Marquand* sp. nov. (Sect. *Frigida*); affinis *G. microdontae* Franch., sed sepalis recurvatis, foliis lineari-lanceolatis angustioribus differt.

Perennial bearing several short leafy stems and erect or ascending, scaberulous flowering stems up to 30 cm. high. *Leaves* of the barren stems linear-lanceolate, up to 15 cm. long, 1·2 cm. wide, gradually narrowed into the petiole; apex subacute. *Cauline leaves* only one or two pairs, oblanceolate, subsessile, apex attenuate, subacute, margin entire, smooth. *Flowers* sessile, 6–8 together at the apex of the stems and also 2–3 in the axils of the leaves of the penultimate node, or on a short branch arising therefrom. *Calyx* partly split down one side; tube 8–9 mm. long, tinged purple below; lobes linear, acute, 4–6 mm. long, recurved: sinus truncate with the inner membrane. *Corolla* (colour not noted by the collector): upper part blue in dried specimens, narrowly infundibuliform, 3–3·5 cm. long, 6 mm. in diameter at the mouth; tube slightly contracted just above the calyx; lobes 5, entire, triangular ovate, 5 mm. wide, apex subacute; plicae short, symmetrical, obliquely-truncate, ± denticulate. *Stamens* shorter than the corolla tube; filaments subulate; anthers linear, 3–4 mm. in length. *Ovary* linear, stipitate; stigmata sessile, recurved, not dilated at the apex. *Seeds* large, areolate, 1·5 mm. long.

Western China. Alpine meadows, precise locality and altitude not noted, Sept. 1904, *E. H. Wilson* (Veitch Expedn.) 4138 (type Herb. Kew.).

The name *Gentiana puberula* Franchet, which was published by Forbes et Hemsley, Journ. Linn. Soc. Bot. xxvi. 132 (1890) for a species in Sect. *Chondrophylla*, is invalid, the name having been used by Michaux in his Fl. Bor. Am. i. 176 (1803) for a species belonging to Sect. *Pneumonanthe*. I therefore propose the name **Gentiana pubigera** *Marquand* nom. nov. for the species which Franchet described.

In Kusnezow's monograph of *Eugentiana* in the Act. Hort. Petrop. xv. (1904) the same trivial name is employed for both species (No. 16, p. 197 and No. 149, p. 422).

Gentiana filistyla *Balf. f. et Forrest* sp. nov. sectionis *Frigidae*; affinis *G. tubiflorae* Wall.

Perennis parvula, rosulata, uniflora, ex rosulis caules paucos breves emittens. *Folia* utrinque laete viridia, rosularum ovalia vel obovalia vel subspathulata ad 8 mm. longa, 4 mm. lata, apice rotundata, margine integra, obscure papillata, deorsum attenuata, caulis erecti subligulata, 2 cm. longa, 2 mm. lata. *Flos* sessillis erectus. *Calyx* tubulosus, ultra folia ultima projectus, 1·8 cm. longus, viridis; limbi oblongi, obtusi, 5 mm. longi, aequales. *Corolla* intense indico-colorata, 4 cm. longa, in dimidio infero angusta, supra ampliata, infundibuliformis; lobi rotundati, 5 mm. longi, 6 mm. lati: plicae breves, vix 1 mm. alta, 6 mm. lata, erosa. *Stamina* ad medium tubi corollini inserta; filamentorum pars libera intense purpurea; antherae liberae, angustae. *Ovarium* calyce inclusum 8 mm. longum 2·5 mm. latum stipite crasso 6 mm. longo; stylus longus, tenuis, filiformis, 1·1 cm. longus corolla paullo brevior; rami stigmatiferi recurva.

N.W. Yunnan. Mekong-Salween divide, July 1917, *Forrest* 14205 (type Herb. Edin.). Mekong-Yangtze divide, Lu-kong Shan, Sept. 1917, *Forrest* 14338.

S.E. Tibet. Tsarong, Ka-gwr-pw, Aug. 1917, *Forrest* 14561: Aug. 1918, *Forrest* 16882.

A small species in habit like *G. Wardii* W. W. Sm. but larger and easily recognised by its filiform long style.

[Differing from *G. tubiflora* Wall. ex Griseb., with which it is closely allied, in the obtuse leaves with rotundate apex, and calyx lobes not mucronate.—C.V.B.M.].

Gentiana helophila *Balf. f. et Forrest* sp. nov. sectionis *Frigidae*; affinis *G. sino-ornatae* Balf. f.

Perennis. Caulis multiceps, ramulos plurimos biennes 15 cm. longos, adscendentes, nunc subprostratos nunquam radicantes emittens. *Folia* uniforme per paria connata (vagina 4 mm. longa), linearia, ad 4 cm. longa, 3·5 mm. lata, acuta, margine membranacea, scabriuscula, basi haud constricta. *Flores* solitarii, terminales, sessiles. *Calyx* angustus infundibuliformis, 3 cm. longus; tubus extus rubro-purpureo-lineatus, intus albidus, membranaceus, laevis, 1·2 cm. longus; lobi lineares, longe acuti, margine scabriusculi, basi haud contracti. *Corolla* ad 7 cm. longa, pallide purpurea supra tubum calycinum, infundibuliformis, vittis externis flavidis purpureo-maculatis et linea centrali purpurea notatis; lobi ad 8 mm. longi, triangulares-acuti, minutissime apiculati; plicae bidentatae, dentibus triangularibus, acutis, inaequalibus, longiore 3 mm. longo. *Staminum* filamenta albida; antherae liberae, basi rotundatae. *Stylus* 6 mm. longus, ramis stigmatiferis 3 mm. longis.

Eastern N.W. Yunnan. Lei-lung-shan, Aug. 1917, *Forrest* 15187 (type Herb. Edin., syntype Herb. Kew.)

A species easily distinguished from its allies by the long purple corolla with larger lobes.

Gentiana stragulata *Balf. f. et Forrest* sp. nov. sectionis *Frigidae.*

Perennis prostrata, late patens, caules plures radicantes foliis siccis praeteritis vestitos emittens et rosulas floriferas gerentes. *Folia* per paria connata, ovalia, apice rotundata, 2 cm. longa, margine saepe rubra glandulosa, deorsum in petiolum attenuata ; supra nitentia, laete virentia, glandulosa, subtus pallidiora. *Flores* 1–3 ad apicem ramulorum, flos terminalis sessilis, flores 2 laterales pedicellati. *Calyx* 2·5 cm. longus, infundibuliformis, plus minusve purpureus et purpureo-maculatus, glandulosus ; lobi tubum aequantes, foliis similes. *Corolla* ad 5·5 cm. longa supra tubulosa purpurea ; lobi coerulei, basi maculati, triangulares, 5–7 mm. longi, basi 5–6 mm. lati ; plicae 2 mm. longae, 4 mm. latae, eroso-lobatae. *Stamina* inclusa. *Ovarium* angustum stipite 2 cm. longo ; stylus 8 mm. longus, corollae tubum superans ; stigma recurvum. *Capsula* semiexserta. *Semina* lamelloso-rugosa.

N.W. Yunnan. Kari Pass, July 1914, *Forrest* 12890 : Mekong-Salween divide, Sept. 1914, *Forrest* 13318 ; Aug. 1917, *Forrest* 14636 (type Herb. Edin.).

S.E. Tibet. Tsarong, Ka-gwr-pw, Sept. 1917, *Forrest* 14872.

A splendid hardy species forming a dense carpet of many flowering rosettes.

Gentiana streptopoda *Balf. f. et Forrest* sp. nov. sectionis *Frigidae* ; ex affinitate *G. chinensis* Kusnez.

Perennis ex apice radicis caules quadrangulares papillatos plures prostratos breves 4–6 cm. longos emittens. *Folia* subcarnosula utrinque laetevirens, infera elliptica vel suborbicularia, supera late ovata vel oblonga ad 2·8 cm. longa 1·2 cm. lata, apice rotundata, margine papillata quasi ciliata, deorsum in petiolum latum attenuata. *Flores* 2–6 ad apicem ramosum congesti, sessiles. *Calyx* 4–6 lobatus dimidiatus nunc integer ; tubus membranaceus 12 mm. longus ; lobi a basi acuminati foliacei virides, 4 mm. longi, margine papillati sinubus rotundatis. *Corolla* 3 cm. longa, pallide coerulea, ad apicem calycis infundibuliformis, supra tubuloso-ampliata ; lobi triangulares, acuti, 5 mm. longi, 3 mm. lati, plicae asymmetricae, 2 mm. latae, plerumque unidentatae, dente 1 mm. longo, nunc fere edentulatae. *Stamina* ad medium tubi corollini inserta ; filamenta exalata ; antherae liberae basi subsagittatae. *Ovarium* angustum 8 mm. longum, 3 mm. latum, stipite crasso corrugato deinde torto. *Stylus* 5 mm. longus, ramis stigmatiferis subulatis recurvis. *Capsula* inclusa ? *Semina* nigra, diversiformia. isodiametrica lamelloso-rugosa.

N.W. Yunnan. Mekong-Yangtze divide, Lu-kong Shan, Sept. 1917, *Forrest* 14827 (type Herb. Edin., syntype Herb. Kew.).

Easily diagnosed by its corrugate ultimately twisted stipe. Distinct from *G. sikkimensis* Clarke.

Gentiana tsarongensis *Balf. f. et Forrest* sp. nov. sectionis *Chondrophyllae*; affinis *G. decoratae* Diels.

Perennis caespitosa 2·5 cm. alta, radice crassiusculo brevi, ex rosula centrali caules bialatos adscendentes plures 6 cm. longos emittens. *Folia* per paria connata, inferioria subsquamiformia, superiora laete viridia, carnosula, ovalia, ad 8 mm. longa, 3·5 mm. lata, obtusa, margine tenuiter membranacea plana integra papillata basi quasi petiolata; supra basi puberula; infra pallidiora; vagina membranacea, vix 2 mm. longa. *Flos* solitarius, sessilis, foliis ultimis subfloralibus saepe coloratis involucrantibus. *Calyx* plus minusve coeruleo-coloratus et minute papillatus 6 mm. longus, ad medium 5-partitus; lobi oblongo-obtusi, basi haud contracti, sinubus obtusis. *Corolla* vix 2 cm. longa, intense coerulea, ad medium 5-partita; tubus calycem superans; lobi oblongi minutissime apiculati, 1 cm. longi, 5 mm. lati; plicae a basi lanceolatae membranaceae, 5 mm. longae, 1·5 mm. latae. *Stamina* ad medium corollae inserta, corolla paullo breviora; antherae tenues oblongae basi integrae. *Ovarium* angustum, stipite 3 mm. longo; stylus brevis 1·5 mm. longus, staminibus longior; stigma recurvum. *Capsula* 1·8 cm. longa, 2·5 mm. lata, subcurvulata, corolla inclusa. *Semina* ovalia, brunnea, testa striata exarillata.

S.E. Tibet. Tsarong, Doker-la, Aug. 1918, *Forrest* 16876 (type Herb. Edin., syntype Herb. Kew.).

[Differing from *G. decorata* Diels in the leaves and calyx lobes being obtuse at the apex.—C.V.B.M.].

XII.—CONTRIBUTIONS TO THE FLORA OF SIAM.* Additamentum XXIV.

Spatholobus pallidus *Craib* [Leguminosae-Phaseoleae]; a *S. acuminato* Benth. vexillo basi cordato-truncato haud cuneato, a *S. compare* Craib foliolis tenuioribus, ab ambobus floribus saltem siccis pallidis recedit.

Frutex volubilis; ramuli annotini glabri, cortice cinereo-brunneo vel brunneo striato obtecti, lenticellis vix conspicuis; alabastra axillaria adpresse ferrugineo-pubescentia. *Folia* trifoliolata, petiolo 1·5–6·5 cm. longo praecipue ad basem incrassatam breviter adpresse ferrugineo-pubescente aliter mox saepe fere glabro subterete vel supra parum anguste canaliculato suffulta; foliola inter se subsimilia, oblongo-elliptica vel oblongo-ovata, apice obtuse acuminata, mucronata, basi rotundata, 4·8–12 cm. longa, 2–5·2 cm. lata, subcoriacea, sicco viridia, subtus parum pallidiora, supra glabra, subtus pilis brevibus albis adpressis inconspicuis sparse instructa, nervis lateralibus utrinque 8–10 supra conspicuis vel subprominulis subtus prominulis, nervulis rete gracile pagina utraque plus minusve conspicuum efficientibus, petiolulis 4–7 mm. longis densius breviter adpresse ferrugineo-pubescentibus demum fere glabris suffulta,

Continued from *K.B.*, 1927, p. 395.

terminali a lateralibus 1–2 cm. distante ; stipellae rectae, vix 2 mm. longae. *Paniculae* e ramulis defoliatis ortae, pedunculo communi 1–2 cm. longo incluso ad 12 cm. longae, ramulis ad 5 cm. longis, rhachi et ramulis pilis brevibus ferrugineis adpresssis vel subadpressis densius tectis ; bracteae angustae, circa 2 mm. longae, deciduae ; pedicelli ad 3 mm. longi, densius puberuli, fere ad medium bracteolis angustis cito deciduis alternis circa 1 mm. longis instructi. *Calyx* 4 mm. longus, basi postice parum gibbosus, extra breviter pubescens, intra fere ad medium glaber, superne breviter adpresse pubescens ; lobi duo postici in unum oblongum apice emarginatum 2·25 mm. longum 2 mm. latum connati, laterales cum antico ad 2·25 mm. longi et 1·25 mm. lati, omnibus ciliatis. *Vexilli* lamina oblata, apice emarginata, basi cordato-truncata, 4·5 mm. longa, 7 mm. lata, ungui 2 mm. longo apice 1 mm. lato suffulta ; alae, ungui 3 mm. longo incluso, 7 mm. longae, apice 2·5 mm. latae, basi latere uno cordatae ; carinae petala, ungui 3 mm. longo incluso, 6·5 mm. longa, 1·75 mm. lata, basi latere uno rotundata. *Filamenta* saltem ad medium inter se libera, antheris parvis. *Pistillum* vix 6 mm. longum, ovario breviter adpresse pubescente, stylo pilis perpaucis inferne instructo.

Surat, Ta Kanawn, under 50 m., evergreen forest, *Kerr* 12317.

Bauhinia concreta *Craib* [Leguminosae-Bauhineae] ; a *B. calcicola* Craib alabastris apice truncatis haud acuminatis, petalis inter se subaequalibus, a *B. Curtisii* Prain floribus minoribus, petalis dorso haud glabris inter alia recedit.

Frutex scandens ; ramuli subgraciles, primo densius breviter adpresse ferrugineo- vel interdum cinereo-pubescentes, cito glabri, hornotini fusco-corticati, annotini pallidiores ; cirrhi graciles, indumento et cortice iis ramulorum similibus obtecti. *Folia* ovata vel late ovata, apice obtusa vel obtuse acuminata, saepe retusa, rarissime sub-bilobulata, basi cordata vel altius cordata, 3·5–6 cm. longa, 1·2–4 cm. lata, chartacea vel rigide chartacea, sicco subviridia, subtus pallidiora, pagina superiore glabra, inferiore ima basi breviter plus minusve adpresse ferrugineo-pubescentia, aliter tantum ad nervos pilis paucis ferrugineis instructa, vetustiora glabra vel saepe ima basi plus minusve pubescentia, e basi 7-nervia, nervis cum costa supra conspicuis subtus subprominentibus, nervulis rete gracile pagina utraque conspicuum vel inferiore prominulum efficientibus, margine primo ciliata, cito glabra, petiolo 1–2·7 cm. longo gracili supra canaliculato indumento ei ramulorum simili tecto cito glabro suffulta ; stipulae fugaces. *Racemi* et terminales et ramulos breves laterales terminantes, pedunculo communi 1–2 cm. longo incluso ad 18 cm. longi, paniculam terminalem circa 10 cm. diametro formantes, rhachi pedicellis et calyce breviter adpresse griseo-pubescentibus vel subtomentellis ; flores albidi (ex *Kerr*), pedicellis circa 8 mm. longis suffulti ; bracteae linearisubulatae, circa 1·5 mm. longae, deciduae ; bracteolae 2, alternae, paulo infra pedicelli medium positae, bracteis similes sed minores,

deciduae. *Sepala* sub anthesin plus minusve libera, ovato-lanceolata, apice incrassata, cucullata, obtusa, 3 mm. longa, 1·75 mm. lata, dorso breviter griseo-pubescentia, intra glabra. *Petala* inter se subaequalia, apice antica et lateralia retusa vel retuso-truncata, postico bilobulato, basi cuneata, ungui 1 mm. longo incluso ad 5 mm. longa, 3 mm. lata. *Stamina* fertilia 3, filamentis glabris 4·5 mm. longis, antheris 1·25 mm. longis, staminodiis evolutis. *Ovarium* glabrum, 2·5 mm. longum, stipite circa 1 mm. longo glabro suffultum, stylo glabro 1·5 mm. longo, ovulis 3.

Surat, Ban Kawp Kep, 100 m., rocky limestone hill, *Kerr* 13180.

Bauhinia tubicalyx *Craib* [Leguminosae-Bauhineae]; ab affini *B. strychnoidea* Prain inflorescentiae rhachi pedicellis et calyce haud glabris distinguenda.

Frutex scandens; ramuli subgraciles, primo angulati, densius puberuli vel laterales breves sparse breviter ferrugineo-pubescentes, mox teretes, glabri, cortice brunneo vel fusco-brunneo obtecti, lenticellis haud conspicuis; cirrhi graciles, apicem versus breviter ferrugineo-pubescentes, cito aliter glabri. *Folia* oblongo-lanceolata, oblonga, vel oblongo-elliptica, apice integra, acuminata, obtusa vel interdum retusa, basi cuneata vel rotundato-cuneata, 5–11 cm. longa, 2·5–5 cm. lata, chartacea vel rigide chartacea, sicco viridia, glabra, triplinervia, nervis secondariis (e costa ortis) utrinque 2–3, omnibus supra conspicuis, subtus costa prominente aliis prominulis, nervulis pagina utraque conspicuis vel saepe prominulis, petiolo 1–4 cm. longo basi et apice incrassato primo parce ferrugineo-puberulo cito glabro suffulta; stipulae circa 2 mm. longae, fugaces. *Racemi* terminales, pedunculo communi 1–2 cm. longo incluso ad 8 cm. longi, breviter albo-pubescentes; bracteae subulatae, circa 2 mm. longae, cito deciduae; pedicelli ad 1·8 cm. longi. *Receptaculi* tubus circa 1·5 mm. longus. *Calycis* tubus ad 2·5 mm. longus, obsolete denticulatus, extra breviter pallide plus minusve adpresse pubescens, intra glaber. *Petala* 5, elliptica vel oblongo-elliptica, 4 mm. longa, 2·5–3·5 mm. lata, basi in unguem 2–3 mm. longum attenuata, ciliata, dorso, ungui incluso, glabra, intra postico glabro, lateralibus sparse pilosis ungui fere glabro, anticis pilosis ungui etiam piloso. *Stamina* fertilia 3, filamentis 7 mm. longis glabris, antheris 2·4 mm. longis, staminodiis 1·5–3·5 mm. longis. *Pistillum* 6 mm. altum, ovario sericeo basi in stipitem vix distinctum angustato, stylo crasso brevi superne fusco glabro, stigmate oblique discoideo, ovulis 6.

Surat, Sawng Pi Nawng, 100 m., evergreen forest on limestone hill, *Kerr* 12407.

Saraca Pierreana *Craib* [Leguminosae-Amherstieae]; a *S. bijuga* Prain bracteolis amplexicaulibus, receptaculi tubo longiore, floribus maioribus, a *S. indica* Linn. et *S. Zollingeriana* Miq. foliolis tantum 2-4 recedit.

Arbor circa 6 m. alta (ex *Kerr*) ; ramuli glabri, cinereo-corticati, lenticellis parvis prominulis. *Folia* sessilia vel subsessilia ; stipulae inter se connatae, saltem 1 cm. longae ; foliola 1–2-iuga, oblanceolata vel oblongo-oblanceolata, rarius oblonga, apice obtuse acuminata, basi inferiora cordata, terminalia inaequilateralia, latere altero anguste cuneata vel acuminata, altero cuneato-rotundata vel subcordata, rarius in foliis uni-iugis elliptica, apice rotundata, basi inaequaliter cordata, 10–40 cm. longa, 4–10·5 cm. lata, chartaceo-coriacea, sicco viridia, subtus parum pallidiora, glabra, nervis lateralibus utrinque 7–12 supra conspicuis vel subprominulis subtus prominulis, nervulis rete subtus prominulum efficientibus, petiolulo crasso ad 5 mm. longo suffulta. *Corymbi* terminales vel e ramulis defoliatis orti, e basi ramosi vel pedunculo communi circa 5 mm. longo suffulti, ad 7 cm. longi et 9 cm. diametro, rhachi ramulis et pedicellis glabris ; bracteae oblongae vel ovato-oblongae, apiculatae, circa 2 mm. longae, facie utraque glabrae, ciliatae, sub anthesin persistentes vel deciduae ; bracteolae 2, suboppositae, amplexicaules, divergentes, ovatae, acutae, 5 mm. longae, 4 mm. latae, apice ciliatae et saepe basi pauperius ciliatae, 1–1·8 cm. supra pedicelli basem positae ; pedicelli inferiores ad 3 cm. longi ; receptaculi tubus 1·7 cm. longus. *Sepala* 4, oblonga, apice rotundata, 1–1·2 cm. longa, 5 mm. lata. *Stamina* 8, filamentis gracilibus circa 3·5 cm. longis glabris. *Ovarium* 6 mm. longum, ad suturas pilosum, stipite 4 mm. longo piloso suffultum, stylo 2·5 cm. longo basi parce piloso, ovulis 5.

Surat, Panom, 50 m., by stream in evergreen forest, *Kerr* 12376.

Sindora fusca *Craib* [Leguminosae-Cynometreae] ; a speciebus aliis stipulis parvis, foliolis 2–3-iugis inter minora graciliter reticulatis supra glabris subtus adpresse puberulis, legumine armato recedit.

Arbor circa 30 m. alta (ex *Kerr*) ; ramuli primo sparse adpresse ferrugineo-pubescentes, brunneo-corticati, cito glabri, cortice fusco obtecti, lenticellis parvis vix conspicuis. *Folia* petiolo 1·3–2 cm. longo incluso 7–14 cm. longa, petiolo cum rhachi sicco brunneo subterete plus minusve angulato sparse ferrugineo-puberulo vel glabro ; stipulae deciduae, oblongae, parum obliquae, 5 mm. longae, 2 mm. latae, nervosae, dorso sparse ferrugineo-pubescentes ; foliola 2–3-iuga, saepissime oblonga vel suboblonga, apice rotundata vel obtusa, parum retusa, basi parum inaequilateralia, rotundata vel cuneato-rotundata, 3–8·5 cm. longa, 1·6–3·5 cm. lata, chartaceo-coriacea, supra glabra, subtus inconspicue adpresse puberula, costa supra conspicua subtus prominente, nervis lateralibus utrinque numerosis inter se parallelis ad marginem currentibus vel intra marginem furcatis et ramis ad marginem currentibus supra conspicuis subtus subprominulis, nervulis rete gracile supra prominulum subtus conspicuum vel subprominulum efficientibus, margine integra, cartilaginea, petiolulis 2–4 mm. longis puberulis subteretibus suffulta. *Legumen* ambitu oblongo-rotundatum, ad 7 cm.

diametro, valvis fuscis sparse breviter pubescentibus faciebus spinis puberulis validis ad 6 mm. longis armatis; semina 1–2, fusca, 1·7 cm. longa, 1·8 cm. lata, funiculo crasso arilliformi semine paulo minore.

Pattani, under 50 m., common in evergreen forest, *Kerr* 7842.

Acacia Meeboldii *Craib* [Leguminosae-Mimoseae]; a speciebus aliis asiaticis internodiis aculeatis et floribus capitatis, foliolis latis ea *Albizziae* vel *Calliandrae* simulantibus distinguenda.

Frutex lignosus, scandens, ramulis primo puberulis cito glabris, hornotinis sicco fuscis, vetustioribus subrubris vel cinereo-rubris, internodiis aculeis subrectis paulo deorsum directis vel paulo recurvatis ad 3 mm. longis sat numerosis armatis. *Folia* bipinnata, petiolo 2–7 cm. longo cum rhachi primo puberulo supra canaliculato subtus saepe sparse armato basi incrassato paulo supra basem glandula ovata instructo suffulta, rhachi ad bases pinnarum saltem duarum ultimarum glandulosa; stipulae deciduae, haud spinescentes, oblongae, obliquae, circa 5 mm. longae et 2 mm. latae; pinnae saepissime 3-iugae, rarissime 2- vel 4-iugae, ad 15 cm. longae, inferiores superioribus breviores, paribus inter se 1·3-2·8 cm. distantibus; foliola pinnarum inferiarum utrinque ad 4, superiarum utrinque ad 7, rhachilla puberula supra canaliculata saepe superne anguste alata apice 1–2-glandulosa ultra foliola producta; foliola omnia inaequilateralia, apice subacuta vel obtusa, saepe subacuminata, latere inferiore dimidio ovata vel oblongo-elliptica, basi truncata, superiore dimidio lanceolata, basi cuneata vel truncato-cuneata, inferiora saepe stipuliformia, circa 4 mm. longa, mediana ad 4·5 cm. longa et 2 cm. lata, terminalia ad 7·5 cm. longa et 3·5 cm. lata, chartacea vel rigide chartacea, sicco viridia vel plus minusve brunnescentia, supra ad costam praesertim inferne crispatim puberula et ad nervos sparse puberula vel glabra, subtus ad costam nervosque pilis brevibus hic et illic instructa vel fere glabra, costa supra prominula subtus prominente, latere inferiore e basi 2-nervia et paulo supra basem nervo costae subaequivalido fere ad apicem currente oreunte, nervis lateralibus e costa ortis saltem ad 10 subtus prominulis, margine parum revoluta, sessilia. *Flores* capitati, capitulis sub fructu pedunculo lignoso 1 cm. longo suffultis. *Calyx* circa 1·6 mm. longus. *Corolla* circa 2·5 mm. longa. *Filamenta* inter se omnino libera. *Legumen* 10-14 cm. longum, 3–5 vel rarius usque ad 6 cm. latum, breviter stipitatum, ad suturas incrassatas puberulum, valvis brunneis vel rubro-brunneis transverse lineatis; semina compressa, ambitu oblonga, 15 mm. longa, 7 mm. lata, funiculo ad 2 cm. longo duro apice curvato instructa.

Langsuan, Pato, 200 m., common in evergreen forest, *Kerr* 12197.

Distr. Lower Burma (*Meebold* 15295, *Parkinson*, 1693).

Polyosma elongata *Geddes* [Saxifragaceae-Escallonieae]; a *P. conocarpa* Ridl. foliis fere glabris nonnullis serrulatis, floribus multo maioribus hirsutioribus differt.

Arbor circa 10 m. alta (ex *Kerr*), ramulis primo compressis mox teretibus. *Folia* opposita, elliptica vel obovata, apice acuminata, basi cuneata, 10–14·5 cm. longa, 3·2–5·5 cm. lata, supra brunnea, fere glabra, subtus viridia vel pallida, puberula, nervis lateralibus utrinque 8–9 vix adscendentibus, margine integra vel raro parte superiore serrulata, petiolo 1–1·3 cm. longo puberulo suffulta. *Racemi* elongati, 25 cm. longi, pubescentes; flores albi (ex *Kerr*), inferiores pedicellati, superiores subsessiles; pedicelli circa 1·5 mm. longi, 3-bracteolati, adpresse albo-pubescentes. *Receptaculum* adpresse albo-pubescens. *Calyx* circa 1·5 mm. longus, lobis 4 deltoideis acutis circa 1 mm. latis extra adpresse albo-pubescentibus intra glabris ciliatis. *Petala* 4, linearia, apice subacuta, 13 mm. longa, 1·75 mm. lata, intra pubescentia. *Stamina* 4, filamentis 5·5 mm. longis parte basali excepta pilosis, antheris 3 mm. longis breviter apiculatis. *Stylus* 9·5 mm. longus, stigmate capitato.

Doi Angka, 1300-1500 m., dense evergreen forest, *Kerr* 5289.

Polyosma odorans *Geddes* [Saxifragaceae-Escallonieae]; a *P. integrifolia* Wall. foliis subtus fere glabris, nervis minus numerosis, floribus maioribus differt.

Arbor circa 15 m. alta (ex *Kerr*). *Folia* opposita, elliptica, apice acuminata, basi cuneata, 8–14 cm. longa, 2·8-6·6 cm. lata, supra brunnea, nitentia, fere glabra, subtus glabrescentia, nervis lateralibus utrinque circa 9 vix adscendentibus pagina inferiore prominulis, margine revoluta, petiolo 1·8 cm. longo glabro suffulta. *Racemi* 10–14 cm. longi, floribus densis subsessilibus. *Calycis* lobi 4, deltoidei, circa 1·5 mm. longi, extra adpresse albo-pubescentes, intra glabri. *Petala* 4, linearia, subacuta, 13 mm. longa, 1·5–2 mm. lata, extra adpresse albo-pubescentia, intra pilosa. *Stamina* 4, filamentis crassis 6 mm. longis parte basali excepta pubescentibus, antheris 3·5 mm. longis quam filamentis angustioribus. *Ovarium* 1-loculare, pluriovulatum; stylus crassus, 8–9 mm. longus, pubescens.

Kanburi, Kao Ri Yai, 1500 m., evergreen forest, *Kerr* 10396.

Kalanchoe tetramera *Geddes* [Crassulaceae]; a *K. Craibii* R. Hamet foliis haud trisectis, inflorescentia densiore, staminibus 4, a *K. Dixoniana* R. Hamet cymis hirsutioribus, caulibus parte superiore pubescentibus, floribus luteis, staminibus 4 differt.

Herba erecta, caulibus succosis teretibus iuventute pubescentibus cito crassioribus glabris. *Inflorescentia* terminalis, late corymbosa, rhachi pubescens; pedicelli 5–6 mm. longi, pubescentes. *Calycis* segmenta 4, lanceolata, apice acuta, longitudinaliter venata, 7 mm. longa, 2·5 mm. lata, extra pilos perpaucos ferentia, intra breviter et parce pubescentia. *Corolla* lutea (ex *Kerr*); tubus urceolatus, 1·3 cm. longus, extra puberulus; lobi 4, obovati, acuti, 10 mm. longi, 5 mm. lati, extra parce puberuli. *Stamina* 4, ad tubum corollae prope summum adfixa, filamentis 1 mm. longis, antheris parvis oblongis 1·3 mm. longis. *Carpella* 4, basi connata, multiovulata,

8–9 mm. longa, squamis 4 lineari-lanceolatis 2 mm. longis basi instructa; styli quattuor, 1·4 mm. longi; stigmata capitellata.

Korat, Chantûk, Tachang, 400 m., limestone rocks, *Kerr* 9988.

Altingia siamensis *Craib* [Hamamelidaceae]; ab *A. chinense* Hance et *A. yunnanense* Rehder et Wilson foliis tenuioribus, ab hac capitulo fructifero multo minore recedit.

Arbor 20–25 m. alta (ex *Kerr*); ramuli iuventute parce pilosi, sicco fusci, plus minusve striati, annotini pubescentes vel fere glabri, brunneo-rubro-corticati, lenticellis paucis, demum cinerei vel brunneo-cinerei. *Folia* saepissime oblongo-oblanceolata vel oblongo-lanceolata, interdum anguste oblonga vel lanceolata, apice obtuse vel subacute caudato-acuminata, basi saepe parum inaequilateralia, cuneata vel rotundato-cuneata, 8–12 cm. longa, 2·5–4·5 cm. lata, rigide chartacea, supra glabra, subtus ad nervorum axillos interdum conspicue pilosa et ad costam pilis paucis iuventute instructa, interdum fere glabra vel omnino glabra, summo apice primo pilis paucis instructa, costa supra conspicua subtus prominente, nervis lateralibus utrinque 7–8 bene intra marginem anastomosantibus supra gracilibus prominulis subtus prominentibus, nervulis rete laxum supra prominulum subtus magis elevatum formantibus, margine cartilaginea, parum revoluta, anguste distanter serrulata, petiolo 5–8 cm. longo supra canaliculato indumento ei ramulorum simili tecto suffulta. *Capitula* fructifera sessilia vel subsessilia, depressa, ad 12 mm. alta, 13–18 mm. diametro, capsulis calyces paululo superantibus.

Mûang Pan, Doi Duan, 700 m., evergreen forest, *Kerr* 5110.

Terminalia glaucifolia *Craib* [Combretaceae-Combreteae]; a *T. bialata* Kurz petiolis crassioribus, inflorescentia longiore crassiore, fructu minore, alis late obovatis haud oblongis brevioribus crispatim puberulis recedit.

Arbor circa 8 m. alta (ex *Kerr*); ramuli annui ad 20 cm. longi, inferne ad 16 cm. nudi, apice folia et spicas gerentes, primo densius breviter adpresse pubescentes, cito glabri, fusci, demum cortice brunneo vel cinereo obtecti. *Folia* ad apices ramulorum gesta, saepissime oblongo-elliptica, apice acuta vel obtusa, interdum breviter acuminata, basi rotundata cuneatave, 6·5–15 cm. longa, 3·5–8 cm. lata, coriacea vel subcoriacea, supra sicco subviridia vel fusca, subtus matura glauca, supra pilis adpressis sparse instructa, mox glabra et verruculosa, subtus glabra, nervis lateralibus utrinque 6–8 intra marginem anastomosantibus supra conspicuis subtus prominentibus, nervulis rete gracile subtus conspicuum formantibus, margine integra, anguste cartilaginea, petiolo 2·8–4 cm. longo eglanduloso puberulo vel glabro suffulta. *Spicae* axillares, ad 30 cm. (pedunculo communi petiolo paulo vel dimidio breviore incluso) longae, rhachi et alabastris fulvo-tomentellis; bracteae fugaces; flores sessiles; receptaculum supra ovarium paululo productum. *Calyx* ad medium 5-lobatus, lobis deltoideis acutis

recurvis, intra dense pilosus. *Filamenta* circa 5 mm. longa, superne angustata, antheris 0·75 mm. longis haud mucronatis, loculis basi liberis. *Stylus* parce pilosus, staminibus brevior; ovarium trigonum, circa 2 mm. longum. *Fructus* 2 cm. longus, alis duabus inclusis ad 8 cm. latis, alis late obovatis striatis crispatim puberulis.

Doi Sutep, 360 m., mixed forest, *Kerr* 1328 (flowers). Chawm Tawng, 270 m., mixed deciduous forest, *Kerr* 2935 (fruit).

Terminalia oryzetorum *Craib* [Combretaceae-Combreteae]; ab affini *T. pyrifolia* Kurz ramulis, foliis iuvenilibus, et inflorescentiae rhachi sericeis, foliis pro longitudine latioribus, fructu basi emarginato recedit.

Arbor circa 10 m. alta (ex *Kerr*); ramuli iuventute sericei, sicco glauci. *Folia* oblongo-oblanceolata vel obovata, apice obtuse vel subacute acuminata, basi cuneata, ad 12 cm. longa et 6 cm. lata, chartacea vel rigide chartacea, sicco viridia vel praesertim supra fuscescentia, iuventute sericea, cito pagina utraque pilis brevibus albis sparse instructa et pustulata, nervis lateralibus utrinque 6–8 intra marginem anastomosantibus pagina utraque conspicuis, nervulis rete gracile subtus conspicuum formantibus, margine anguste cartilaginea, petiolo 1–2 cm. longo eglanduloso primo sericeo suffulta. *Racemi* infructescentes ad 15 cm. longi, rhachi sericei. *Fructus* trigonus, 9–12 cm. longus, alis duabus late obovatis striatis ad 1·8 cm. longis et 2·5 cm. latis puberulis.

Mûang Pichit, 50 m., scattered through paddy fields, *Kerr* 5671.

Combretum procursum *Craib* [Combretaceae-Combreteae]; ab affini *C. quadrangulare* Kurz foliis maioribus, receptaculo supra ovarium distincte tubuloso-producto distinctum.

Frutex volubilis (ex *Kerr*); ramuli iuventute dense lepidoti, angulati, cito conspicue acute quadrangulares, demum obtuse quadrangulares, sparsissime lepidoti, cortice pallide brunneo vel cinereo-brunneo obtecti, lenticellis sparsis vix conspicuis. *Folia* opposita vel subopposita, elliptica vel oblongo-elliptica, rarius late lanceolata, apice acute vel obtuse acuminata, basi cuneata vel rotundato-cuneata, 3·5–11 cm. longa, 1·7–6 cm. lata, chartacea, sicco pallide viridia, primo pagina utraque dense mox superiore subsparse lepidota, nervis lateralibus utrinque 5–7 intra marginem anastomosantibus, supra conspicuis subtus prominulis, nervulis pagina utraque subconspicuis, margine integra, petiolo 5–10 mm. longo lepidoto eglanduloso supra canaliculato suffulta. *Spicae* axillares, solitariae, rarius paniculatae vel etiam rarius paniculam terminalem efoliatam formantes, circa 5 cm. (pedunculo communi circa 1 cm. longo incluso) longae, et rhachi et alabastris dense lepidotis. *Receptaculum* ad 1·25 mm. supra ovarium tubuloso-productum. *Calyx* 2 mm. longus, ad medium lobatus, lobis 4 deltoideis acutis, intra praesertim basi densius pilosus. *Petala* 4, obovata vel anguste obovata, subunguiculata, 1·25 mm. longa,

0·75 mm. lata. *Stamina* 8, filamentis 4 mm. longis superne angustatis antheris circa 0·5 mm. longis. *Stylus* staminibus paulo brevoir ; ovarium 1·25 mm. longum, ovulis 4 pendulis. *Fructus* stipite quadrangulari 3 mm. longo suffultus, 4-alatus, alis inclusis ambitu rotundatus, ad 2·4 cm. diametro, lepidotus, alis horizontaliter striatis.

Kanburi, 50 m., common woody climber in bamboo forest, *Kerr* 10561.

Rhodomyrtus parvifolia *Craib* [Myrtaceae-Myrteae] ; ab affini *R. tomentosa* Wight foliis floribusque minoribus, bracteolis linearibus distinguenda.

Suffrutex circa 0·5 m. altus (ex *Kerr*) ; ramuli subgraciles, primo cinnamomeo-tomentosi, cito fusco-tomentosi, demum glabri, cortice brunneo obtecti. *Folia* ovata, interdum late ovata vel ovato-lanceolata, apice obtuse acuminata, basi rotundata, 1·8–3 cm. longa, 1·2–2 cm. lata, subcoriacea, sicco supra viridia vel saepe brunnescentia, subtus pallide viridia, pagina utraque iuventute cinnamomeo-tomentosa, cito superiore plus minusve glabrescentia vel omnino glabra, et inferiore cinereo-tomentosa, pellucido-punctata, trinervia, nervis supra impressis subtus prominentibus, nervis secondariis (e costa ortis) numerosis rectis inter se parallelis supra saepissime impressis subtus prominulis, margine integra, recurva, petiolo circa 2 mm. longo indumento ei ramulorum simili tecto suffulta. *Flores* lactei (ex *Kerr*), ramulis annotinis gesti, axillares, per 1–3 (saepissime 2) ; pedicelli 1·5 cm. longi, cinnamomeo-tomentosi, apice bracteolis duabus linearibus 2 mm. longis similiter tectis instructi ; receptaculum circa 2·5 mm. longum, similiter tectum. *Sepala* 4, rarissime 3, oblonga vel subrotundata, 2·5–3·75 mm. longa, 2·75–3 mm. lata, utrinque pilosa. *Petala* 4, rarissime 3, late obovata vel rotundato-obovata, apice rotundata, basi late cuneata, 6 mm. diametro, dorso pilosa, intra glabra. *Filamenta* circa 3·5 mm. longa, glabra, antheris versatilibus circa 0·6 mm. longis. *Stylus* 5·5 mm. longus, glaber, stamina paululo superans ; ovarium uniloculare, placentis 2 parietalibus, ovulis numerosis 3-seriatis, septis aut erectis aut transversis sub anthesin haud indicatis.

Lôi, Pu Tong, 1300 m., savannah, *Kerr* 8857.

Osbeckia parva *Geddes* [Melastomaceae-Osbeckieae] ; ab *O. truncata* D. Don foliis minoribus, caulibus pilis adpressis instructis, ab *O. cochinchinense* Cogn. pilis stellatis differt.

Herba erecta, 6–33 cm. alta, tenuis ; caules sicco pallidi, quadrangulares, pilos longos adpressos ferentes. *Folia* lineari-lanceolata vel ovato-lanceolata, apice acuta vel subacuta, basi obtusa, 1–2·7 cm. longa, 0·2–0·6 cm. lata, sicco luteo-viridia, pagina utraque pilis longis adpressis instructa, nervis tribus subtus prominentibus supra impressis, petiolis vix 1 mm. longis pilis longis instructis suffulta. *Inflorescentia* terminalis, bracteata ; flores pauci. *Receptaculum* pilis longis instructum. *Calycis* segmenta 4 vel 5, lanceolato-ovata,

2 mm. longa, ciliata, tuberculis parvis plurisetulosis alternantia. *Corolla* purpurea (ex *Kerr*) ; petala glabra, 4 mm. longa. *Stamina* 8, inter se aequalia ; filamenta 2 mm. longa ; antherae oblongae, obtusae, truncatae, 1 mm. longae. *Ovarium* 3 mm. diametro, apice setosum, 4-loculare ; stylus glaber, 4 mm. longus ; stigma 0·75 mm. longum.

Doi Sutep, 1330 m., among grass in open forest, *Kerr* 2719 (*type*), 2236.

Osbeckia setoso-annulata *Geddes* [Melastomaceae-Osbeckieae] ; ab *O. zeylanica* Willd. foliis minoribus, caulibus glabris, receptaculo annulato, annulis margine setulosis differt.

Herba erecta, ramosa, 14–23 cm. alta, caule quadrangulare nodis setosulo mox glabro. *Folia* opposita, lineari-lanceolata, apice acuta, basi cuneata, 1–3·3 cm. longa, 2–8 mm. lata, supra viridia, glabra vel parce setulosa, subtus pallida, glabra, nervis 3 pagina superiore impressis inferiore prominulis, margine denticulata, dentibus apiculatis, petiolo 0–2 mm. longo supra canaliculato glabro suffulta. *Cymae* terminales atque axillares, pauciflorae, subsessiles ; pedicelli circa 2 mm. longi, glabri. *Receptaculum* annulis 3–4 margine superiore liberis et setulosis instructum. *Calycis* segmenta 4, ovato-lanceolata, acutissima, 4·5 mm. longa, 3 mm. lata, ciliata, dentibus semirotundatis setulosis alternantia. *Petala* 4, purpurea (ex *Kerr*), obovata, basi cuneata, 10 mm. longa, 9 mm. lata, membranacea, glabra. *Stamina* 8, inter se aequalia, filamentis 5·75 mm. longis, antheris 5 mm. longis attenuatis. *Ovarium* 4-loculare, apice setosum ; stylus 11·25 mm. longus, glaber.

Kanburi, Wangka, 200 m., limestone rocks, *Kerr* 10470.

Sonerila gracilis *Geddes* [Melastomaceae-Sonerileae] ; a *S. picta* Korth. foliis minoribus pilis longis tectis, inflorescentia pilos patentes ferente, petalis longe apiculatis differt.

Herba erecta, tenuis, 15 cm. alta, caule primo piloso mox glabro. *Folia* opposita inter se inaequalia, oblongo-lanceolata, apice acuta, basi obtusa vel cuneata, 1·8–7·2 cm. longa, 0·6–2·3 cm. lata, supra viridia, pilis longis parce instructa, subtus pallide viridia, parce setulosa, nervis lateralibus utrinque 2, margine denticulata, dentibus apiculatis, petiolo 0·7–2·5 cm. longo supra canaliculato parce setuloso suffulta. *Cymae* terminales, 3–5-florae, pedunculo erecto 3·3–4 cm. longo pilis patentibus instructo suffultae ; flores subsessiles, 2·3 cm. longi. *Calycis* lobi 3, triangulares, acuti, 2·5 mm. longi, pilis paucis longis extra instructi. *Petala* 3, argentea (ex *Dr. Smith*), elongato-elliptica, apiculata, basi cuneata, 2 cm. longa, 0·4 cm. lata, extra medio pilis paucis glanduloso-capitatis instructa, aliter glabra. *Stamina* 3, filamentis 7 mm. longis, antheris 9–10 mm. longis attenuatis basi sagittatis. *Ovarium* 3-loculare, glabrum ; stylus 1·6 cm. longus, glaber.

Nakawn Sritamarat, Kao Luang, jungle, *Dr. Eryl Smith* 759.

Sonerila parva *Geddes* [Melastomaceae-Sonerileae]; a *S. Kerrii* Craib et Stapf foliis non tam hirsutis pagina inferiore pallidis, floribus omnino minoribus differt.

Herba parva, 4–6 cm. alta; caulis parce setulosus. *Folia* fere verticillata, ovato-rotundata, apice obtusa, basi cordata, 2–4 cm. longa, 1·5–3 cm. lata, supra nervis exclusis parce setulosa, subtus praesertim ad nervos nervulosque setulosa, nervis lateralibus utrinque 4–5 supra impressis subtus prominulis, margine crenulato-setulosa; petioli 1–2·3 cm. longi, supra canaliculati, pilis paucis glanduloso-capitatis instructi. *Cymae* terminales, 3–4-florae; pedicelli 1–2 mm. longi, glabri, basi parvi-bracteolati. *Receptaculum* glabrum. *Calycis* segmenta 3, ovata, 1 mm. longa, margine ciliata excepta glabra. *Petala* 3, purpurea (ex *Kerr*), oblonga, basi cuneata, 6 mm. longa, 2·75 mm. lata, glabra vel dorso pilis perpaucis medio instructa. *Stamina* 6, antheris inter se fere aequalibus 4 mm. longis apice attenuatis basi sagittatis, filamentis 4·5 mm. longis. *Ovarium* glabrum; stylus 6 mm. longus, glaber.

Sukotai, Kao Luang, 1000 m., rock crevices, *Kerr* 5919.

Anplectrum patens *Geddes* [Melastomaceae-Medinilleae]; ab *A. pallente* Blume foliis haud caudatis, floribus fructibusque maioribus, ab *A. glauco* Triana foliis haud coriaceis, floribus iuventute brevius acutissimis differt.

Frutex scandens, ramis primo quadrangularibus sulcatis puberulis mox teretibus glabris. *Folia* opposita, ovato-lanceolata, apice acuta, basi cordata, 5·4–7·6 cm. longa, 1·9–3·3 cm. lata, supra viridia, paulo nitentia, glabra, subtus paulo nitentia, ad nervos parcissime stellato-puberula vel glabra, nervis 5 pagina superiore impressis inferiore prominentibus, margine revoluta, petiolo 4 mm. longo supra canaliculato pilos minutos stellatos ferente saepe longe et parce pilato suffulta. *Inflorescentia* terminalis, paniculata, laxa. *Receptaculum* apice constrictum, dorso pilis minutis stellatis parce instructum. *Calycis* segmenta 4, brevissima. *Petala* 4, rosea (ex *Kerr*), ovata, basi cuneata, 7 mm. longa, 3·5 mm. lata, omnino glabra. *Stamina* 8, 4 magna et 4 parva, filamentis longioribus 5 mm. brevioribus 3 mm. longis, antheris maioribus 1 cm. longis curvatis attenuatis basi ante bituberculatis a tergo breve et late appendiculatis. *Ovarium* 4-loculare, apice septis 4 instructum; stylus 12 mm. longus, glaber. *Fructus* purpureus (ex *Kerr*), 7 mm. longus, 5·5 mm. diametro, ambitu rotundato-oblongus, glaber; semina oblonga, haud curvata.

Pattani, Bachaw, 50 m., climbing through bushes on edge of evergreen forest, *Kerr* 7215.

XIII.—DECADES KEWENSES Plantarum Novarum in Herbario Horti Regii Conservatarum. DECAS CXIX.

1181. **Garcinia tenuifolia** *Ridl.* [Guttiferae]; arbuscula affinis *G. dumosae* King, foliis majoribus, staminibus floris masculi paucis,

filamentis distinctis nullis, stigmate in flore femineo haud costato dense tuberculato.

Arbuscula 2-3 metralis ; *foliis* tenuibus nec coriaceis lanceolatis caudato-acuminatis basibus cuneatis, nervis 7-paribus subtus paullo elevatis alternis intra margines arcuatis, superne immersis, intermediis paucis, nervulis paucis inconspicuis irregularibus, costa subtus elevata, 5–14 cm. longis, 5–7 cm. latis (acumine 2 cm. longo), petiolis crassis rugosis flavidis 8 mm. longis ; *floribus masculis* parvis pallide flavis in glomerulis densis sessilibus axillaribus, plurifloris, 5 mm. latis, pedicellis brevibus ; *sepalis* 3 ovatis rotundatis ; *petalis* 4 carnosis rotundatis 1 mm. longis ; *androecio* basi columnari, antheris hippocrepiformibus 5, sessilibus ; *floribus femineis* rubris singulis in axillis, multo majoribus ; *sepalis* 3 rotundatis ovatis 3 mm. longis, petalis 4 ovatis rotundatis carnosis ; *ovario* ovoideo-oblongo 5 mm. longo ; *stigmate* hemisphaerico dense pustulato ; *staminodiis* pluribus minutis, filamentis gracilibus, antheris minutis oblongis.

Malay Peninsula. Pulau Tioman, near Ayer besar, 800 ft. alt., shrub 6–8 ft. tall, flowers pale yellow, *Mahommed Nur* 18760 (male) : Pulau Aor, 500 ft., shrub with small red flowers, *Henderson* 18361 (female).

This is one of the thin-leaved Garcinias. The few stamens in a short column, and the entire tuberculate stigma make it different from any of its allies.

1182. **Begonia tiomanensis** *Ridl.* [Begoniaceae] ; species *B. Herveyanae* King affinis foliis late ovatis nervis et petiolis hirtis, floribus majoribus.

Herba ; *foliis* late ovatis obtusis basibus rotundatis ferme aequilateris retusis superne glabris subtus costa nervisque hirtis, nervis primariis 4 paribus elevatis, secundariis dissitis, hirtulis, 24 cm. longis, 18 cm. latis, petiolis validis 24 cm. longis hirtis ; *pedunculo* 35 cm. longo glabro bracteis oblongis 2 cm. longis et floribus masculis longe (5 cm.) dissitis ; *cyma* terminali laxa floribus femineis ; *floribus masculis* roseis ; *sepalis* 2 oblongis obtusis 4 mm. longis, 8 mm. latis ; *petalis* 2 late rotundatis 1 cm. longis, 1–2 cm. latis ; *staminibus* plurimis ; antheris oblanceolatis obtusis ; *capsulis* (immaturis) tripteris, lobis 2 brevibus oblongis rotundatis, 5 mm. longis, uno oblongo apice rotundato 2 cm. longo, *stigmatibus* 5 mm. longis bifurcatis tortis.

Malay Peninsula. Pulau Tioman, near Gunong Rokam, 2500 ft., on rocks, flowers pink, *Mahommed Nur* 18796.

The specimens are rather incomplete but the species is clearly allied to *B. Herveyana* King ; however, the veins on the petiole and on the leaf, which is broader and distinctly ovate, are hairy ; the flowers are larger. The peduncle appears to have bracts in the axils of which are male flowers.

1183. **Eugenia ciliaris** *Ridl.* [Myrtaceae]; species affinis *E. Moonianae* Wight, floribus racemosis multo minoribus sepalis ovatis, petalis ciliatis differt.

Frutex 1·5–2-metralis; *foliis* coriaceis puncticulatis obovatis basibus angustatis, apicibus obtusis, nervis tenuibus inconspicuis 10-paribus, intra-marginali 1 mm. a margine, 4–5 cm. longis, 2–3 cm. latis, petiolis crassiusculis 3 mm. longis racemis lateralibus paucifloris axillaribus 1 cm. longis; *floribus* dissitis ad 7, albis, 5 mm. latis; *bracteis* minutis lanceolatis acutis; *sepalis* 5 ovatis rotundatis; *petalis* liberis obovatis rotundatis marginibus ciliatis; *staminibus* plurimis petala haud superantibus, antheris rotundatis dorsifixis; *stylo* breviusculo, ovario obconico brevi.

Malay Peninsula. Pulau Tioman, near Gunong Rokam, 2700 ft., shrub 4 to 6 feet tall, flowers white, *Mahommed Nur* 18812.

This is the first of the short few-flowered axillary-racemed species to be found in this area. It is perhaps nearest to *E. Mooniana* Wight of Ceylon which it much resembles in habit, but the flowers are distinctly racemed, much smaller and on short pedicels. The ciliation of the petals is peculiar.

1184. **Eugenia saxitana** *Ridl.* [Myrtaceae]; species *E. inophyllae* Wall. affinis, foliis brevioribus crassioribus, nervis inconspicuis, calyce crassiore rugoso-angulato, staminibus brevibus.

Arbor glabra; *foliis* rigide coriaceis oblongo-lanceolatis obtuse acuminatis basibus brevissime cuneatis, nervis valde inconspicuis ad 30 paribus, marginibus incrassatis costa superne elevata canaliculata 6–8 cm. longis 3·5–5 cm. latis, petiolis crassis transverse rugosis 8–10 mm. longis; *cymis* terminalibus et in axillis supremis laxis paucifloris 3–4 cm. longis, pluribus, 4-floris, pedunculis 1–2 cm. longis; *pedicellis* 1 cm. longis crassiusculis longitudinaliter rugosis; *ovario* cupuliformi 3 mm. longo; *sepalis* vix distinctis brevissimis obtusis, *petalis* ovatis obtusis 2 mm. longis et latis; *staminibus* pluribus brevibus filamentis crassiusculis; *stylo* vix breviore crasso.

Malay Peninsula. Pahang, Gunong Tahan, 5000 ft., *Seimund* 357.

The petals, which are small, fall off separately. The stamens are moderate in number and short, hardly longer than the petals, and the short, thick, style is little longer. The pedicels and ovary have rather obscure elevated ridges. The plant is allied to *E. inophylla* Wall., but more compact, the leaves smaller and thicker, stamens shorter, calyx thicker, rugose and angled.

1185. **Didymocarpus Wengeri** *Fischer* [Gesneraceae]; species *D. Margaritae* W. W. Smith affinis, sed foliis et bracteis subtus glandis stellatis instructis, marginibusque breviter crenatis, floribus minoribus aliter coloratis differt.

Herba parva; caulis 0·5–1 cm. longus, hirsutus. *Folia* 1–2 paria, opposita, subradicalia, orbicularia, basi aequaliter cordata, 4–6 cm.

diametro, breviter crenata vel serrato-crenata, basi subpalmatim 5–7-nerva, superne utrinque nervis primariis 3–4, adscendentibus, arcuatis, supra distinctis, infra crassis, subprominentibus, in sicco brunneis, ciliata, supra villosa, subtus in venis parum hirsuta, glandis minutissimis turgidis, atris, plerumque sub lente cruciforme ornata; petiolis 2–5 cm. longis, plus minus hirsutis. *Scapus* gracilis, 5–8 cm. longus, parce hirsutus, apice versus capillis nonullis glanduloso-capitatis, plus minus glandibus cruciformibus instructus. *Inflorescentia* cymosa, trichotoma; bracteae ad furcas duo, oppositae, sessiles, orbiculares 1–2 mm. diametro, rubro-brunneae, rarus hirsutae, subtus glandibus cruciformibus dense ornatae; rami graciles et pedicelli capillares capillis glanduloso-capitatis instructi. *Flores* circiter 1 cm. longi, pedicelli 2–4 mm. longi. *Calyx* 3–4 mm. longus, glaber vel fere glaber, extus subrugosus, rubro-brunneus, fere ad basin in lobos 5 lineari-lanceolatis fissus. *Corolla* inaequaliter bilabiata, glabra vel superne capillis raris glanduoso-capitatis instructa; tubus anguste infundibuliformus circiter 1 cm. longus, roseo-ruber; lobi patentes, orbicularis, flavi, 3·4–5 mm. diametrales, 2·2 mm. diam. *Stamina* 2, inclusa, circiter in tubo medio inserta, glabra; filamentis rectis, antheris magnis, ovatis; staminodia in floribus dissectis desunt. *Discus* O. *Ovarium* sessile, lineare-ellipticum, glabrum; stylo equilongo, apice geniculato, stigmate peltato 2-lobato, subexserto. *Fructus* (juvenis solum visus) linearis.

Assam. South Lushai Hills, 2400 ft., *Revd. W. J. L. Wenger.* "This is a charming little plant, and apparently scarce, at least in these Hills, for I have only found one small patch on a steep clayey bank" (Wenger in epistola).

1186. **Trigonostemon arboreus** *Ridl.* [Euphorbiaceae]; arbor, *T. sumatranae* affinis, floribus in glomerulis, bracteis foliaceis elongatis angustis, calyce subintegro, staminibus 3, disco trilobo carnoso, diversa.

Arbor, 5–7 metralis; *foliis* tenuiter coriaceis lanceolatis basibus attenuatis apicibus cuspidatis nervis 15-paribus subtus elevatis inter se arcuantibus, 30–35 cm. longis, 9·5–12 cm. latis, petiolis 10 cm. longis; *paniculis* racemiformibus lateralibus extra-axillaribus gracilibus 15–20 cm. longis; *floribus* in glomerulis dissitis longe pedicellatis; *bracteis* foliaceis anguste lanceolatis 6 cm. longis 5 mm. latis tenuibus in petiola 2 cm. attenuatis pallidis; *floribus masculis* pallide viridibus 2 mm. latis in pedicellis gracillimis 8 mm. longis; *sepalis* brevissimis ovatis; *petalis* rotundatis marginibus laciniatis; *staminibus* 3 filamentis brevibus ad basin connatis; *antheris* bifurcatis loculis divaricatis, *disco* carnoso trilobo; *floribus femineis*, non visis; *capsula* (immatura) subglobosa 1 cm. longa calyce vix lobato pedicello 12 mm. longo.

Malay Peninsula. Pulau Tioman, Sedagong, 1000 ft., small tree 15 to 20 feet tall, flowers pale green, *Mahommed Nur* 18595.

This is perhaps nearest to *T. sumatranus*. The lateral racemes of distant glomeruli with thin, long narrow lanceolate bracts, and the arborescent habit are peculiar.

1187. **Bulbophyllum Frostii** *Summerhayes* [Orchidaceae—Epidendreae]; *B. Dayano* Rchb. f. simile sed scapo unifloro, sepalis extra superne longe et irregulariter papillosis, labello sagittato laevi ecarinato facile distinguendum.

Pseudobulbi approximati e rhizomate repente, compressiuscule ovoidei, laeves, 1·5–2 cm. longi, monophylli. *Folia* sessilia, elliptica, obtusa, 3·5 cm. longa, 2 cm. lata, carnosa. *Scapus* brevis, crassiusculus, 1·5–2 cm. longus, uniflorus. *Flores* pro generi magni, purpurei. *Sepalum* dorsale orbiculari-ovatum, breviter acuminatum, basi rotundatum, 13 mm. longum, 9 mm. latum, valde convexum, extra longe et irregulariter papillosum, intus laeve, marginibus breviter ciliatis; sepala lateralia oblique oblongo-lanceolata, subacuminata, circiter 2 cm. longa, 8–9 mm. lata, 7-nervia, extra basi excepta longe irregulariter papillosa, intus laevia, ciliata. *Petala* oblonga, obtusa, leviter convexa, circiter 1 cm. longa, 6 mm. lata, utrinque glabra, marginibus eroso-ciliatis. *Labellum* valde carnosum, sagittatum, curvatum, in toto 7–8 mm. longum, inter lobos basilares 5 mm. latum, utrinque lobis basilaribus flavido-pubescentibus exceptis glabrum, nervis 5 vix conspicuis usque ad medium decurrentibus. *Columna* 5 mm. longa, late alata, apice obtusa, integra, rostello minuto.

ANNAM. Coll. *W. J. C. Frost.* Imported and flowered by Messrs. Sander, St. Albans, November 1927.

1188. **Zeuxine Blatteri** *Fischer* [Orchidaceae]; propinqua *Z. affini* Benth., sed foliis latioribus, petiolis angustioribus, vaginis glabris, labelli sacco carnoso profundiore intus ecalcarato, limbi lobis orbicularis glabris distat.

Herba terrestris gracilis. *Rhizoma* tenue; caulis glaber exilis, 5–12 cm. longus. *Folia* 4–6, membranacea, ovata ad lanceolata, acuta, basi rotundata, 4–5 cm. longa, 0·8–2 cm. lata, glabra, olivacea vel rubro-brunnea; petiolus circiter 5 mm. longus, planus, in vaginam hyalinam tubulosam laxe amplexicaulem amplians, circiter 1 cm. longus. *Pedunculus* cum spica 15–25 cm. longus, gracilior, glanduloso-pubescens; vaginis duobus distantibus hyalinis laxe tubulosis, acuminatis, glabris amplexus. *Spica* 5–11 cm. longa, laxiflora. *Bracteae* lanceolatae, acuminatissimae, 3–7 mm. longae. *Flores* sessiles. *Sepala* viridula apice pallida; dorsale late ovatum, subacutum, basi saccatum, extus minute pubescens, lateralia libera, ovato-lanceolata, acuta vel subacuta, 1-nervia, dorsalibus paullo breviora. *Petala* sepalo dorsali adhaerentia et ei aequilonga, oblongo-lanceolata, obtusa, rubidula. *Labellum* 4 mm. longum, sepalo dorsali paullo longius, basi carnosum et profunde saccatum, saccus aurantiacus, margine parum lobulato, intus carinis 2 carnosis inconspicuis provisus, apice basique interdum cohaerentibus

ellipsem angustam formantibus; limbus albus, alis 2 orbicularis formatus in sacco sessilibus sinu brevi divisis. *Ovarium* anguste subulatum, 5–7 mm. longum, glanduloso-pubescens. *Capsula* anguste ellipsoidea, apice angustata, 8–9 mm. longa, glabrescens.

MADRAS PRESIDENCY. High Wavy Mountains, May, "in damp forest," *Blatter & Hallberg* 343.

1189. **Gagea kashmirensis** *Turrill* [Liliaceae]; ab affini *G. amblyopetala* Boiss. et Heldr. caulibus et saepissime foliorum caulinorum marginibus pilis albis distinctis instructis recedit.

Bulbi duo inaequales, minore superiore lateraliter sito, 5–7 mm. longi, vix 5 mm. diametro, laeviusculi, utrinque tunica communi inclusi. *Caulis* erectus, usque ad 1·4 dm. longus, pilis albis longiusculis plus minusve dense praeditus. *Folia radicalia* duo, angustissime linearia, fere filiformia, usque ad 1 dm. longa; *caulina* alterna, inaequalia, a dilatata basi lanceolata subspathacea, apicem versus subconvoluta attenuata, margine plus minusve longe albociliata, inferiore usque ad 5·5 cm. longa saepissime breviore, superiore 1–2·2 cm. longa, internodo 1·7–2·5 cm. longo. *Inflorescentia* 3–6-flora, pedicellis erectis vel suberectis saepissime 1–2 cm. longis pilis albis instructis; bracteae lineares. *Flores* lutei in omnibus partibus glabri, perigonii segmentis anguste ellipticis vel elliptico-oblanceolatis basi leviter attenuatis 0·8–1·1 cm. longis circiter 3 mm. latis, exterioribus acutis 5–7-nervibus, interioribus subobtusis 3–4-nervibus. *Stamina* 6–7 mm. longa, antheris oblongis fere 2 mm. longis. *Ovarium* obovoideum, basi parce attenuatum, 2–2·5 mm. altum, 1·5–2 mm. diametro; stylus 5 mm. longus.

KASHMIR. Srinagar, 5100 ft., March 1926, *Canon Stokoe* 2.

In addition to the presence of a white-haired indumentum on the stems and leaves this species appears to differ from *G. amblyopetala* in the smaller and relatively more elongated bulbs and in a usually more pronounced internode between the two cauline leaves. The size of the flowers varies somewhat and in one individual the normal inflorescence is replaced by bulbils and elongated narrow linear bracts.

According to A. Terracciano in Bull. Herb. Boiss. Ser. 2, vi. 117 (1906), *G. amblyopetala* is known only from Italy, Sicily, Greece (Attica), Thessaly, Thrace, and Asia Minor. In addition I have records from Euboea and Macedonia. It is evident that *G. kashmirensis* is geographically widely separated from the known distributional area of the species showing the greatest morphological resemblance to it.

1190. **Carex leucostachys** *Ridl.* [Cyperaceae]; species *C. tricephalae* Boeck. affinis, differt utriculis fusiformibus, rostro longiore nec bidentato, stylo ad basin non incrassato, spiculis vix globosis.

Herba 50 cm. alta; *foliis* linearibus acuminatis 5·5 cm. longis, 1 cm. latis, marginibus et costis scabris; *culmo* breviore triquetro

scabrido, foliis 2 dissitis ; *panicula* densa albescente 5 cm. longa ; *spicis* subcylindricis 1 cm. longis congestis ; *bracteis* foliaceis angustis vel angustissimis longioribus, inferioribus paniculam superantibus ; *floribus masculis* in spicula paucis terminalibus ; *floribus femineis* 2–3 ; *glumis* ovato-lanceolatis acuminatis hirtis ; *nervis* 15, albescentibus, 4 mm. longis ; *utriculis* longioribus hirtis fusiformibus triquetris basibus attenuatis rostro elongato haud bidentato ; *stylo* ad basin haud incrassato, stigmatibus 3 longis rubris hirtis ; *achenio* fusiformi-ovato obtuso triquetro.

MALAY PENINSULA. Pulau Tioman, Gunong Kajang, 2500 ft., *Mahommed Nur* 18912.

This belongs to Kukenthal's section *Scabrellae* and seems most closely allied to *C. tricephala* of Madura island, which, however, I have not seen. The whole set of these Carices are marked by their usually dense white panicles, which this plant shows very well.

XIV.—MISCELLANEOUS NOTES.

The Director, during his present visit to Australia (*K.B.* 1928, App. 1), has been honoured by having had conferred upon him the Degree of D.Sc. ad eundum gradum by the University of Adelaide.

It is with much pleasure that we record the following :—

In the recent New Year Honours List, Mr. O. T. FAULKNER, B.A., Director, Agricultural Department, Nigeria, received the Honour of the Companionship of The Most Distinguished Order of St. Michael and St. George.

Mr. CHARLES HENRY CURTIS, Managing Editor of The Gardeners' Chronicle, has received from His Majesty the King of the Belgians the decoration of Chevalier de l'Ordre de la Couronne. In May last the French Government honoured Mr. Curtis by conferring on him the decoration of Chevalier de l'Ordre du Mérite Agricole.

Dr. D. H. SCOTT, F.R.S., has been awarded the Wollaston Medal of the Geological Society for 1927.

The following appointments have been made by the Secretary of State for the Colonies :—MR. K. E. TOMS (Horticulturist, Zanzibar), Assistant Superintendent of Plantations, Amani Institute, Tanganyika Territory (*K.B.* 1925, p. 394) : Mr. E. S. MCINTOSH, B.Sc., Assistant Geneticist, Barbados.

A British Garden Flora.*—The primary aim of Lt. Col. Kirk's new work is to enable the cultivator of any hardy plant to ascertain the genus to which it belongs and thus achieve the first step towards its identification. There is no doubt that such a work was greatly

*By Lt.-Col. J. W. C. Kirk. Edward Arnold & Co., London, 1927, pp. x + 584, text figs 223. Price 42*s*.

needed. The identification of a plant whose genus is not known presents an almost hopeless task to the average worker in the garden who has only the popular text-books to consult, for most of these in the descriptions they give presume a knowledge of the genus and confine themselves mostly to specific characters. They are in fact written more with the idea of informing the reader about a plant whose name is known than of pointing the way to ascertain the name of a plant whose identity is unknown or doubtful. Whilst, therefore, Col. Kirk's book is essentially a botanical one, its chief purpose is to help the cultivator. In this respect it breaks new ground and whilst it may be described as a gardener's book it is, so far as we know, the only one of its particular kind in English that deserves that title. One thing that will commend it to very many is the fact that the author uses ordinary language whenever he can and only reverts to technical terms when they are absolutely necessary to avoid obscurity or tiresome length of phrase.

The first requisite necessary to the use of this book is that the student should know something of plant structure, should be cognisant, that is, of the names of the different parts of a plant and the functions that each performs. Col. Kirk provides for this in a chapter on " Structure of Plants " admirable for its conciseness and clearness. Once this chapter is mastered the student is equipped with sufficient knowledge to enable him to assimilate the wonderful mass of information that follows.

The process of identifying a plant must commence by ascertaining the Family or Natural Order to which it belongs, and for this purpose the author provides a Key to the 140 families dealt with in this work. After that there follow Keys of the genera of each family, a description of each family and genus, and interesting information regarding their distribution on the face of the globe and any outstanding characteristics they may possess.

The following is a sample Key dealing with the hardy Lauraceae :

Leaves all quite entire :

Sepals 4.....1. *Laurus.*

Sepals 6 .....

Shrubs. Anthers 2-celled.....2. *Lindera.*

Trees. Anthers 4-celled.....3. *Umbellularia.*

Some leaves with one or two lobes .....4. *Sassafras.*

In all 1050 genera are dealt with. Very useful and interesting features of the book are the explanations of the derivation of the generic names, and an indication of how they should be pronounced.

A rather curious inclusion in the book, essentially botanical as it is, is a dissertation on such purely horticultural subjects as transplanting and pruning. Readers, however, have no reason to complain, for they are given an excellent exposition of the theory underlying both operations. We have not seen anywhere a better

explanation of the principles that should guide the cultivator engaged in them. In dealing with the transplanting of evergreens, the author points out the danger attending the operation that arises from the continuous activity of the leaves, thereby making an evergreen plant, especially one with a large leaf surface, very susceptible to the root injury that transplanting involves. But he does not advise what is a very useful antidote to the injury. This is the reduction of the leaf area by a drastic pruning, either by thinning or shortening (or both) of the leafy shoots. We consider this plan, restoring as it does to some extent the balance between root and leaf, a most effective help in the transplanting of difficult evergreens.

Col. Kirk is to be congratulated on the excellence of the numerous illustrations, almost entirely original. They are well reproduced and add greatly to the value of the work. The typography and printing are excellent.

Beautiful Flowers of Kashmir.*—Until the latter part of last century the "beautiful flowers of Kashmir" were largely unknown. But with the increasing number of travellers annually visiting this delightful region it has become more and more desirable to publish a popular flora. Mere descriptions of the plants would not be of much help. Pictures must be provided and a small illustrated Flora made available. Mr. Coventry made a beginning by giving us a number of unarranged autochrome photographs under the title "Wild Flowers of Kashmir." In the present publication we have the first volume of a systematic arrangement of the whole of the Kashmir flowers, and as Father Blatter has dealt with about half we may expect one other volume to complete the whole. The book is made intelligible to beginners by simple botanical descriptions and a glossary. The thirty-four plates are reproduced from Mrs. Wathen's beautiful water-colour drawings and from Haldar Joo Walli's pictures. Coventry's autochromes are cited. S. T. D.

Wild Flowers of Kashmir.†—We are glad to see a second series of Mr. Coventry's attractive autochrome pictures, preceded by an autochrome frontispiece showing the appearance of the Liddar Valley when *Primula nivalis* is in flower. The whole is arranged with letterpress as in the series previously noticed. (*K.B.* 1924, p. 176).

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*Beautiful Flowers of Kashmir, by Ethelbert Blatter. Illustrated by Mrs. Wathen and Haldar Joo Walli. Vol. i, London, 1927, John Bale, Sons & Danielsson, Ltd., London, pp. xv. + 198, pl. 33 and frontispiece. Price 21*s.* net.

†Wild Flowers of Kashmir (Series ii), by B.O. Coventry. Raithby, Lawrence & Co., London, 1927, pp. xxvi. + 100, 51 coloured plates. Price 16*s.*

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